THE PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY

PULP & PAPER

FEBRUARY 1950
Vol. 24 No. 2

The Cellulose Age

COUNTING SHEETS AT WESTFIELD RIVER PAPER CO., INC., IN RUSSELL, MASSACHUSETTS

PULP WOOD
TO COLORED PAPER
Rely on National Aniline
Technical Service
for development of economical color formulae to suit the use requirements of the types of paper and board desired.
for assistance in duplicating our laboratory formulations efficiently in the mill.

For the best dyes
backed by National service,
write, wire or phone our nearest office.

National Aniline PAPER DYES

NATIONAL ANILINE DIVISION
Allied Chemical and Dye Corporation
40 Rector Street, New York 6, N. Y.
BOSTON • PROVIDENCE • PHILADELPHIA • CHICAGO • SAN FRANCISCO • PORTLAND, ORE.
GREENSBORO • CHARLOTTE • ATLANTA • NEW ORLEANS • CHATTANOOGA • TORONTO

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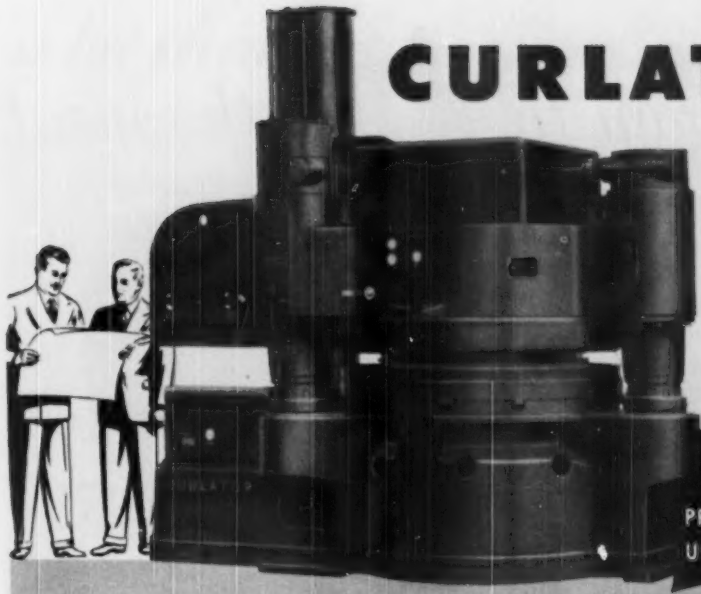
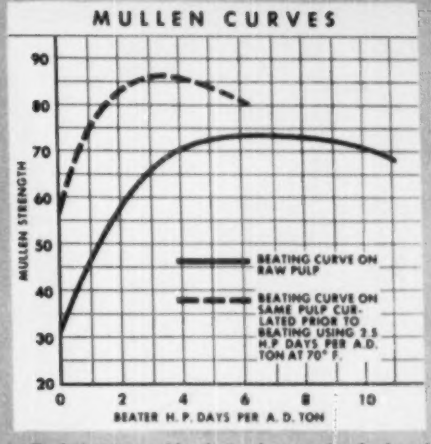
CURLATION*

New Process for Pulp Treatment



Effect of Curlation Prior to Beating, on the Beatibility of PREVIOUSLY DRIED NORTHERN UNBLEACHED SULPHITE PULP



TEST DATA

	HP DT*	FREENESS	MULLEN	TEAR	DENSOMETER
RAW PULP	0	843	32.4	127	4.2
	1	822	46.2	133	9
	2	813	55.0	114	14
	3	792	66.6	98	23
	5	723	71.8	87	68
	7	628	72.5	75	161
	9	548	73.6	71	454
	10	492	68.2	64	744
	11	413	69.7	64	1808
	14	240	63.5	54	4772
PREVIOUSLY CURLATED PULP	0	840	56.3	142	3.5
	1	805	74.5	116	15
	2	763	82.8	101	27
	3	690	86.0	97	106
	4	608	85.8	83	184
	5	562	80.8	74	544
	7	430	78.3	72	1612
	12	187	65.3	49	2880

*H. P. DAYS PER A. D. TON SPENT IN BEATING ONLY.

The Curlator is a tool for altering the properties of pulp and paper to obtain qualities hitherto unachievable by mechanical means. The effects of curlation vary with the raw material and may be described only in relation to a particular pulp.

NOTE: Description of the testing procedures employed by the Curlator Corporation Laboratory will be provided upon request.

• Illustrated here is the CURLATOR*—the machine that permanently curls and twists pulp fibres to produce improved sheet characteristics.

CURLATION is a fully tested and thoroughly proved mechanical process.

Its accomplishments in improved quality and outstanding savings justify the attention of paper mill executives responsible for sales and profits.

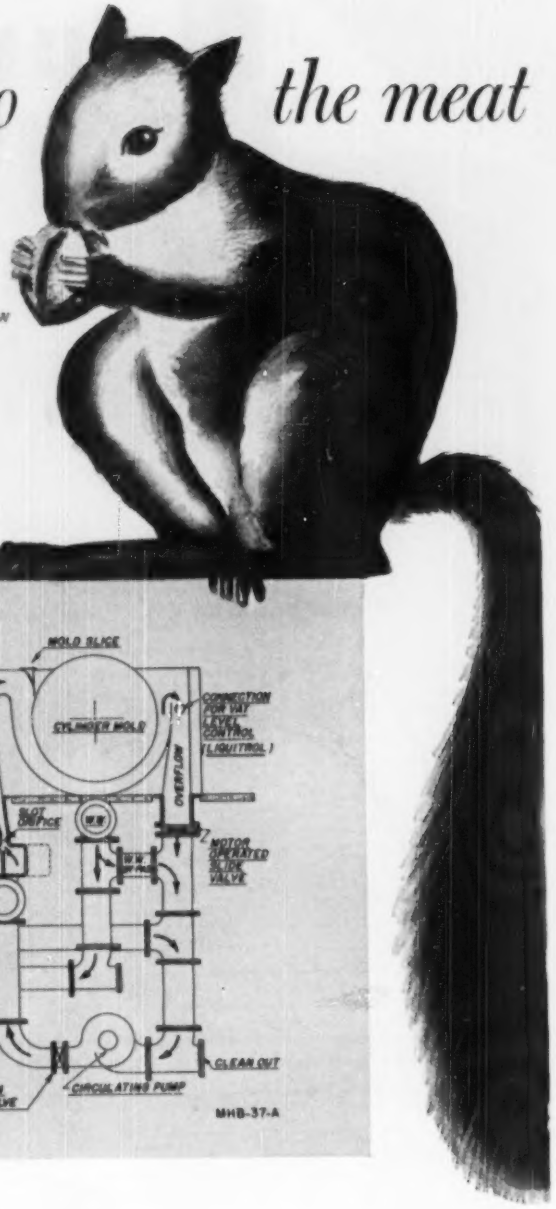
The chart shown here will be followed by others equally informative. Meanwhile, illustrated literature is yours for the asking.

CURLATOR* Corporation

565 BLOSSOM ROAD • ROCHESTER 10, NEW YORK

*T. M. Reg.—Curlator Corporation, Rochester, New York

Right down to the meat



Getting right down to the meat of the matter, here are some questions and answers on the Black-Clawson "HYDRONAMIC" Inlet.

Why a "HYDRONAMIC" Inlet? To maintain a uniform flow and uniform fiber distribution clear across the sheet.

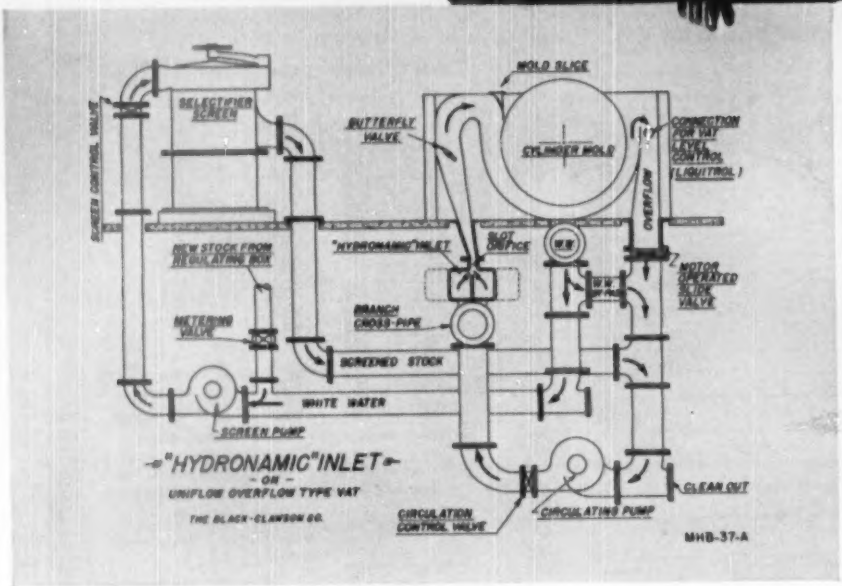
Why a totally-enclosed "HYDRONAMIC" Inlet? To minimize cross currents and flocculation.

Why a flat angle nozzle slice? To assure smooth delivery of the stock to the wire and obtain better control of fiber orientation.

Why a totally-enclosed "HYDRONAMIC" Pressure Inlet with a short coupled flat angle nozzle type slice? To make a better-formed and more level sheet at any desired operating speed.

¶Effective on both cylinder machines and Fourdriniers.

Stock flow diagrams on request.



THE BLACK-CLAWSON CO.

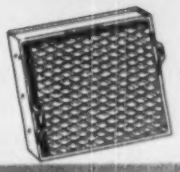
HAMILTON, OHIO

BOILER SYSTEM EQUIPMENT • PRODUCT OF DILTS

Divisions: SHARTLE BROS. MACHINE CO., MIDDLETOWN, OHIO • DILTS MACHINE WORKS, FULTON, NEW YORK
Western Sales Office: Mayer Building, Portland, Oregon Associate: ALEXANDER FLECK LIMITED, Ottawa, Ontario, Canada
Subsidiary: B-C International, Ltd., 16 Catherine Place, Victoria, London S. W. 1, England

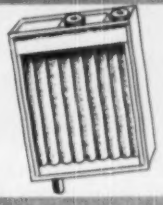
a lot that's new has been added...

CHECK THESE 7 NEW FEATURES OF THE *Improved* ROSS-GREWIN System



1

All air is now filtered

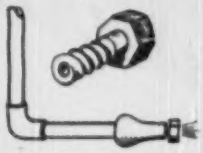


2

Heater casings and piping are thoroughly air tight

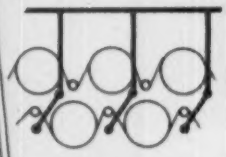
3

Higher air temperature is achieved



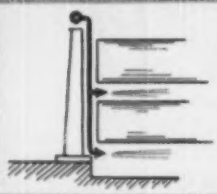
4

Orifices are graduated and easily interchangeable



5

Air is also supplied to the Dryer Felt Pockets



6

Front drop pipes are inside frames, where possible, for safety of operators

7

Hand-wheel operated damper on compressor allows quick, accurate adjustment of air pressure to suit grade of paper

We have further improved the effectiveness of this system by providing more uniform drying and increased capacity and we have greatly improved upon the construction so that this effectiveness can be maintained indefinitely. Consult us about revamping your existing system or planning your new ROSS Grewin System. J. O. ROSS ENGINEERING CORPORATION, 350 Madison Ave., N. Y.—Chicago, Boston, Los Angeles, Detroit, Montreal, Canada.

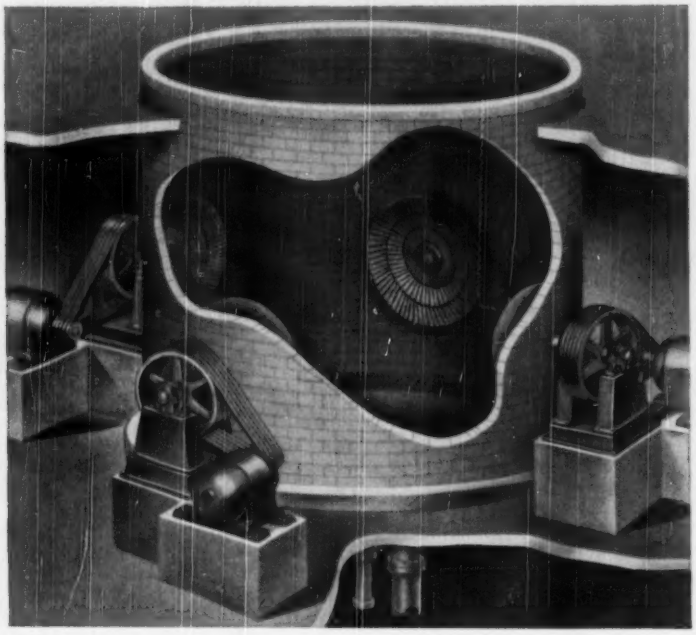
Be Sure Your System Is Designed • Built • Installed By

ROSS ENGINEERING

Here's the New Rice Barton

QuatroPulper

. . . a high production machine . . . ideal for disintegrating pulp, broke or waste paper



THE stock is charged all at one time into the top of the vat. Four DynoPellers (described below) subject it to the vigorous dynomizing action that completely separates each fibre from its neighbor, maintaining its original length. The simple operating principle and design of the QuatroPulper eliminates the "wracking" and grief of other types of pulpers. Because there are few moving parts there is no loss of production time due to repair or adjustment. The QuatroPulper defibers the stock at low cost and produces a high quality slurry quickly and effectively.

Let us tell you how the QuatroPulper can save YOU *money in processing* YOUR *particular stock. Write today.*

The DynoPeller ·····›

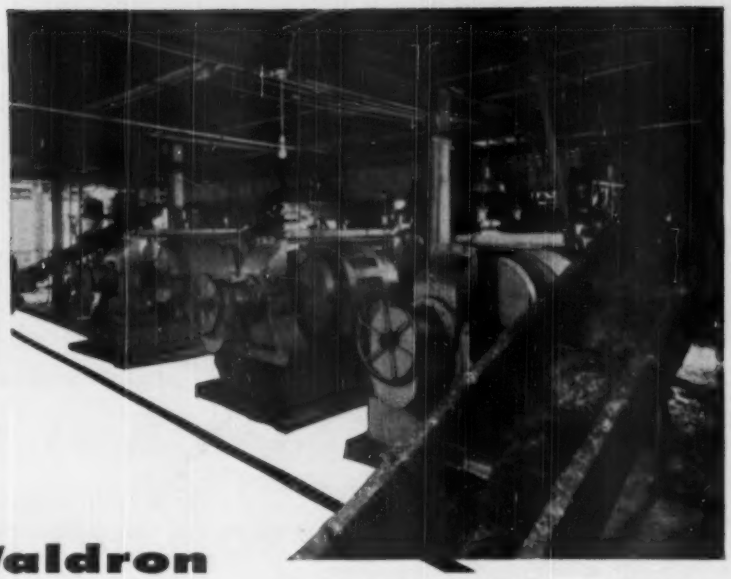
Is the heart of all DynoMachines. Its concave face is lined with rough, hard carbide particles. As the DynoPeller rotates it causes a suction at its center that pulls the stock towards it. Centrifugal force then causes the stock to flow rapidly over the rough carbide particles. This effective dynomizing action completely disintegrates the stock . . . separating each fibre from its neighbor while maintaining its original length.

RBRs

RICE BARTON *Research Corporation*

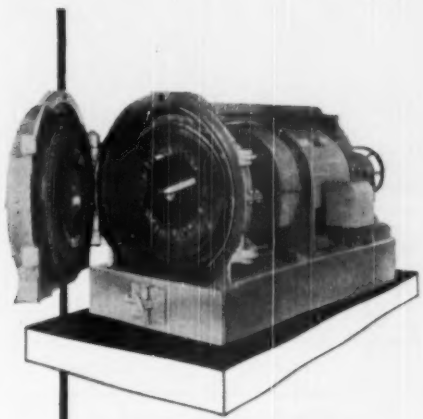
WORCESTER 1, MASS.

Mills that compare **Refiners** *choose* **Sprout-Waldron**



The MAIZEWOOD Installation

A battery of S/W Refiners and stock conveyors recently installed at the Maizewood Insulation Co., Dubuque, Iowa



S/W Refiners do a wide variety of jobs—all of them thoroughly and economically. Here are some applications: refining kraft, soda, and sulphite knotter and fine screen rejects; hogged bull screen rejects; knotter and second screen rejects of raw groundwood; semi-chemical chips of all kinds; spent chips after extraction process; bagasse, straw, and similar grasses; breaking down lumps in reclaimed waste paper stock; reduction and refining of rag and other half stocks, etc., etc.

When all the pros and cons are weighed about pulp refiners, your choice will be Sprout-Waldron. Here is a high quality refiner that does more at less cost. A humdinger in any type of pulping, it far outperforms similar equipment in semi-chemical operations.

Its rugged construction, precision engineered, includes the unique peripheral control ring feature. This provides great flexibility of adjustment, enabling you to produce a wide variety of pulp characteristics. **With the Sprout-Waldron you can pinpoint exact pulp requirements.** Long-life plates are available in many styles . . . are easily changed and inexpensive.

Your initial investment in a S/W Refiner is comparatively low. High production rates, economy in power consumption, ease of operation, adjustment, and maintenance, mean additional savings.

Let a Sprout, Waldron representative explain how these refiners can step up your output and cut operating costs, or ask for Bulletin R-748. Address Sprout, Waldron & Co., Inc., 32 Waldron Street, Muncy, Penna.

Sprout, Waldron

Manufacturing Engineers

SINCE 1848

MUNCY, PENNSYLVANIA

112

TREES OF MERCY FROM OUT OF THE SKY

Anywhere in the world where persons are cut off from normal sources of supply . . . food, fuel, medicine, and other necessities can be brought to them by air transport—even though landing facilities do not exist. The answer, of course, is the cargo parachute.

These life-preserving 'chutes usually are made, wholly or in part, from high-strength viscose rayon yarn, much the same kind of yarn that improves the wearing qualities of automobile and truck tires. And what is the yarn made from? Trees!

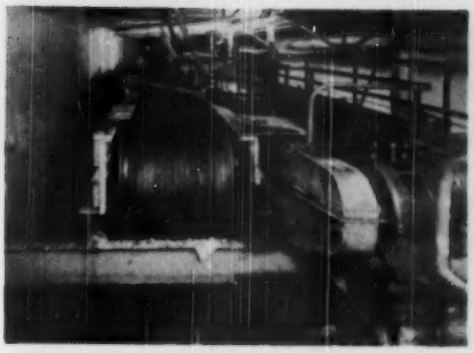
In fact, more than eighty per cent of all viscose rayon and acetate yarns produced in this country are made from highly purified cellulose derived by chemical processes from wood.

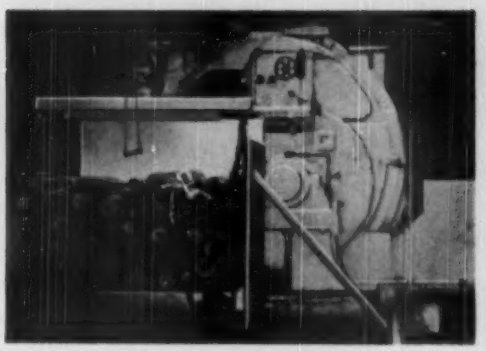
Rayonier supplies a large part of the highly purified wood cellulose used by domestic textile manufacturers for making viscose rayon and acetate yarns and staple fiber for wearing apparel, tire cord, draperies, rugs, and many other textile products. We also supply large quantities of purified wood cellulose for the manufacture of cellophane and other transparent packaging materials.

RAYONIER
INCORPORATED

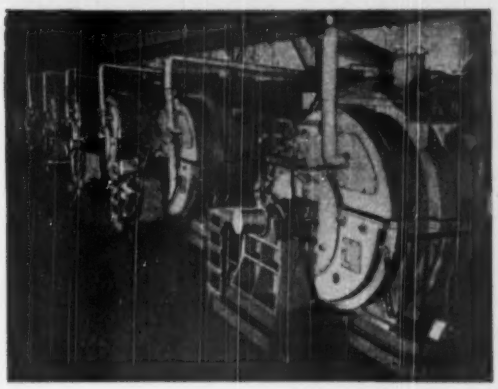
EXECUTIVE OFFICES: 122 East 42nd Street, New York 17, New York • MILLS: Hoquiam, Port Angeles, Shelton, Washington; Fernandina, Florida

PRODUCER OF HIGHLY PURIFIED WOOD CELLULOSE for TEXTILES • TIRE CORD • CELLOPHANE • PLASTICS





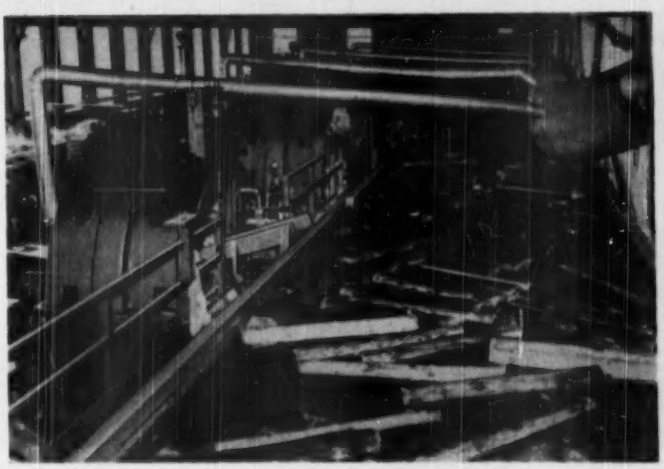
Adaptable to Any Loading System



Easy loading is an important feature of the Roberts Grinder. The wide variety of systems now being used to supply wood to this modern grinder demonstrates how easily it can be adapted to practically any system. From batch manual feed for a single grinder to the highly efficient conveyors used on the large installations, each has been engineered to individual mill requirements. Each provides an easy and economical means for maintaining the large daily production of the Roberts Grinder. Each represents an important saving in labor.

Large Labor Savings

Easy loading is a feature that is responsible for large labor savings with the Roberts Grinder, as high as 70% on some installations. Many maintenance needs are eliminated. Grinding four and five foot wood cuts preparation costs, reduces waste. Thousands of manhours are saved annually. Lower labor needs all down the line is an important item in cutting the cost per ton to manufacture groundwood pulp. It is only one of the many advantages of the high-speed continuous Roberts Grinder.



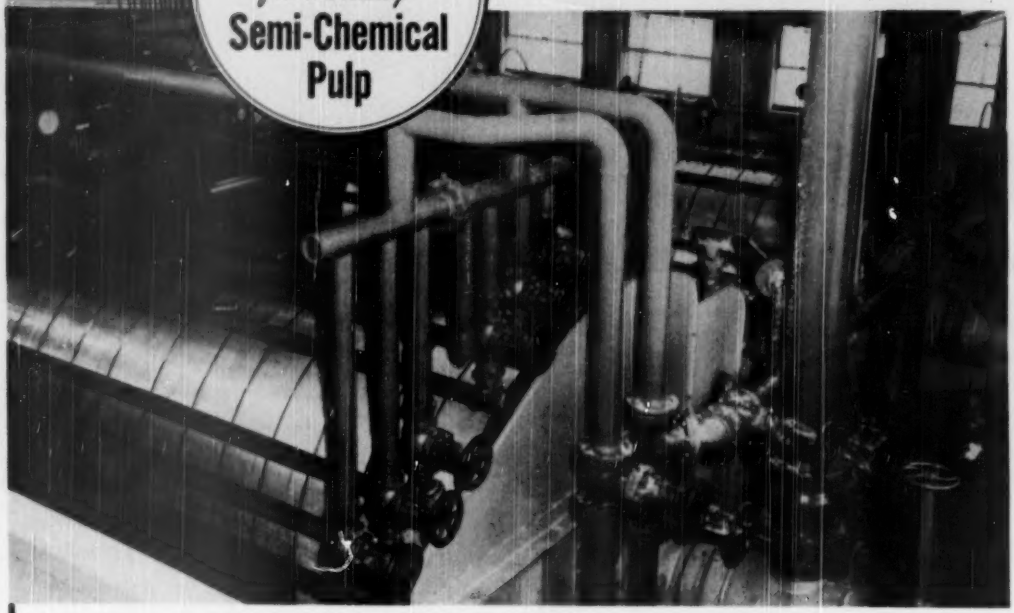
ROBERTS GRINDER

THE APPLETON MACHINE COMPANY • APPLETON • WISCONSIN

Eastern Sales: CASTLE & OVERTON, Inc., 630 Fifth Avenue, New York • Western Sales: PACIFIC COAST SUPPLY CO., San Francisco • Portland

OLIVER "RINGVALVES"

for washing
Semi-Chemical Pulp



A book could be written about the wide use of the Oliver Ringvalve Filter for washing sulphate and sulphite stock . . . how its unique design and uniform sheet promote high washing efficiency . . . how its flexibility permits wide variations in washing methods.

Here's a "Ringvalve" installation at Sonoco Products Company, Hartsville, S. C. where the filters are operating on semi-chemical pulp and doing a fine job . . . more evidence of the versatility of the Oliver Ringvalve Washer! At present the two filters are operating as a 4-stage, series washing system. Later, when the tonnage is doubled, a third unit will be added and the system changed to 3-stage counter-current washing.

With such a fine record being made by the Oliver Ringvalve Washer in over 30 mills—a record of high washing efficiency, flexibility in operation, sustained overload or surge capacity—can you afford not to investigate fully its merits for your pulp washing requirements?

OLIVER UNITED FILTERS INC.

New York 18, N. Y.
33 West 42nd Street

Chicago 1, Ill.
221 N. LaSalle Street

Western Sales Div:
Oakland 1, Calif.
2900 Glascock Street

San Francisco 11, California

Sales & Manufacturing Representative:
E. Long Limited, Orillia, Ont., Canada

Factories: **Oakland, Calif. • Hazleton, Pa. • Orillia, Ont., Canada** **Melbourne, Australia**

16 Camachines

SERVE THE PAPER MACHINES AND FINISHING ROOMS

at the great Rumford mill

OXFORD PAPER COMPANY

Send for this new folder—

Get the Facts! This is the first bulletin to be published describing and illustrating the sensational new engineering values which are being built into the fast new Camachine mill type winders. Write for your free copy of "Mile-a-Minute", today!

OVER THE YEARS 16 Camachines (winders, slitters, rewinders and automatic web tension machines) have been installed at the winding end of paper machines and in the finishing rooms at Oxford's Rumford (Me.) mill, largest operation of its kind in the world. Now, Camachines are chosen again to play an important part in the expansion program at Rumford. Again and again — where quality standards are highest you'll always find Camachines.

AA-218

Camachines FOR FAST, TOP QUALITY ROLL PRODUCTION

. . . the world over

CAMERON MACHINE COMPANY • 61 POPLAR STREET • BROOKLYN 2, N. Y.

PACIFIC COAST SUPPLY COMPANY • PUBLIC SERVICE BUILDING, PORTLAND 4, OREGON • 342 SANSOME STREET, SAN FRANCISCO 19, CAL.

NOPCO KFS*
CUTS FOAM
ALL ALONG THE LINE

Wherever foaming occurs—on screens, in rifflers and washers, and on paper machines—you'll find Nopco's newly-developed KFS an outstanding foam killer. It practically eliminates obstinate foam conditions within a *matter of minutes.*

If results with defoamers you have already used have not proved satisfactory, it is very probable that KFS is the one you are seeking. For this new foam destroyer is stable to chemicals such as alum and chlorine, and to hard water. It can do a real job *all along the line,* no matter how great the volume or speed of production.

IN THE PULP MILL

Added to digester effluent, KFS cuts foam to negligible proportions.

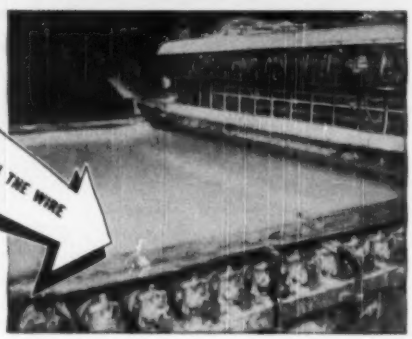
Added to bleach plant effluent, which contains chlorine-lignin combinations and foams heavily, KFS does an exceptional job of foam control—making it easy to dispose of waste liquors.

Added to stock immediately before it passes through screens, rifflers and washers, KFS prevents foam formation during processing.

IN THE PAPER MILL

When added to stock just preceding any point where foaming occurs, KFS dissipates foam effectively. Thus foaming can be eliminated on the screen, in the vat, or on the wire. The results are: better fibre dispersal, reduced breaks, *improved sheet formation.* In addition, higher machine speeds are made possible *without sacrifice of quality.*

Nopco KFS is easily made into a stable emulsion, by agitation with a paddle. Order enough for a trial run—and see for yourself how advantageous this new defoamer can be.



NOPCO
EVOLVED THRU RESEARCH

NOPCO CHEMICAL COMPANY

Formerly National Oil Products Company

HARRISON, NEW JERSEY

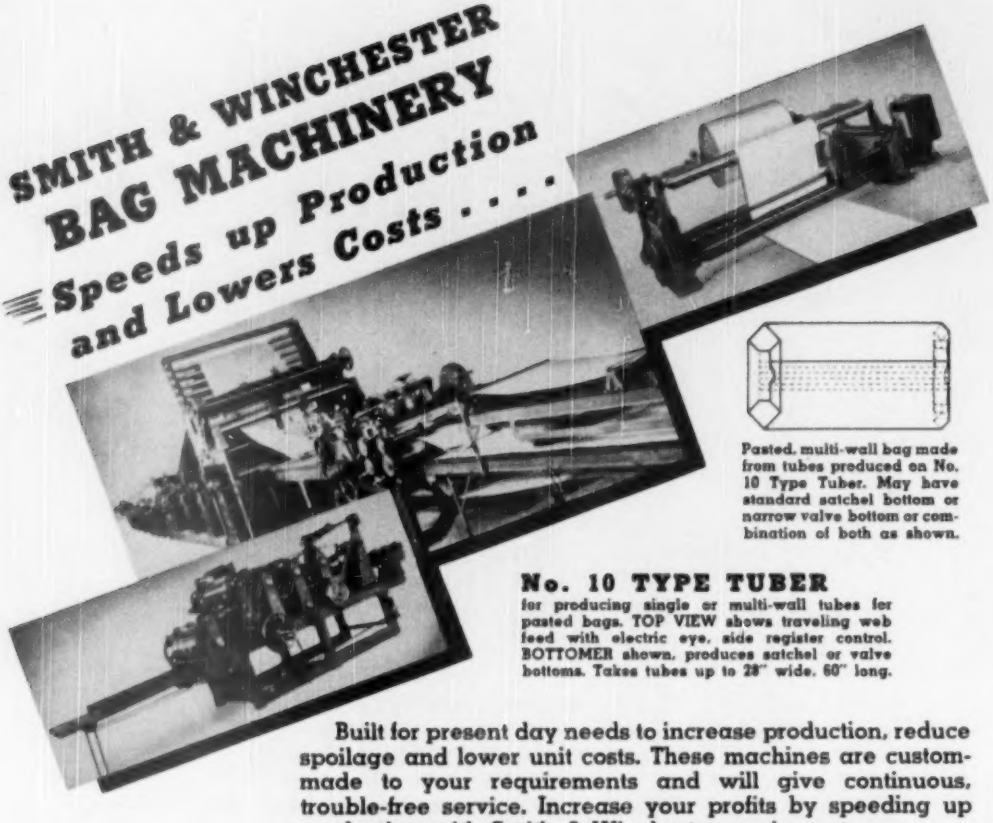
Branches: Boston, Chicago, Cedartown, Ga., Richmond, Calif.

*Reg. U. S. Pat. Off.

Getting the jump on the other fellow!
There's nothing new in the fact that transportation and marketing go hand in hand.
Union Pacific realizes the importance of on-time deliveries so that raw materials and finished products will reach destinations when the demand is most urgent. The shipper whose consignment gets there first has the jump on competition.
By means of dieselized locomotives . . . classification yards that cut switching time in half . . . and other facilities . . . Union Pacific speeds the movement of freight on its rails. It pays to ship "U. P."
UNION PACIFIC RAILROAD
BE SPECIFIC: Ship UNION PACIFIC

SMITH & WINCHESTER BAG MACHINERY

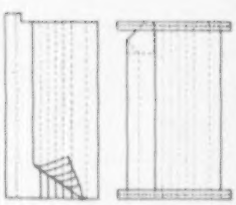
Speeds up Production and Lowers Costs . . . .



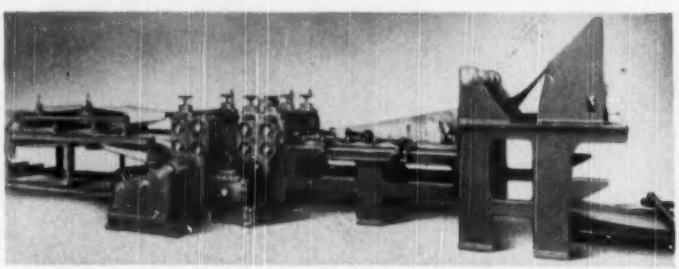
Pasted, multi-wall bag made from tubes produced on No. 10 Type Tuber. May have standard satchel bottom or narrow valve bottom or combination of both as shown.

No. 10 TYPE TUBER
for producing single or multi-wall tubes for pasted bags. TOP VIEW shows traveling web feed with electric eye, side register control. BOTTOMER shown, produces satchel or valve bottoms. Takes tubes up to 28" wide, 60" long.

Built for present day needs to increase production, reduce spoilage and lower unit costs. These machines are custom-made to your requirements and will give continuous, trouble-free service. Increase your profits by speeding up production with Smith & Winchester equipment.



Multi-wall, sewed valve type, gussetted tube made on Smith & Winchester Multi-wall Tuber.



S & W MULTI-WALL TUBER

Up to 100,000 valve notch tubes each 8-hour day may be produced on this Multi-wall Tuber for sewed valve bags. One to 6 walls. Machine built in 2 sizes, 20" and 26" face. Up to 6" gussets. Tubes 26" to 50" long. Improved cross pasting units, photo-electric compensating drives and flying splice paper roll stands can be furnished.
If you have a bag problem write us.

THE SMITH & WINCHESTER
Manufacturing Company
South Windham, Conn.

SERVING THE PAPER INDUSTRY SINCE 1828

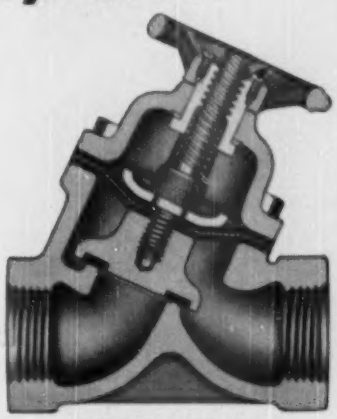
Piping equipment for every system... from one complete line

FOR BETTER CONTROL OF HARD-TO-HOLD FLUIDS

Crane Diaphragm Valves—in plain iron or Neoprene-lined types—are ideal for conveying compressed air, compressed or liquefied gases, volatile and corrosive fluids. Crane separate disc-diaphragm construction—a revolutionary improvement in packless valve design—makes these new valves safer, more durable, more efficient.

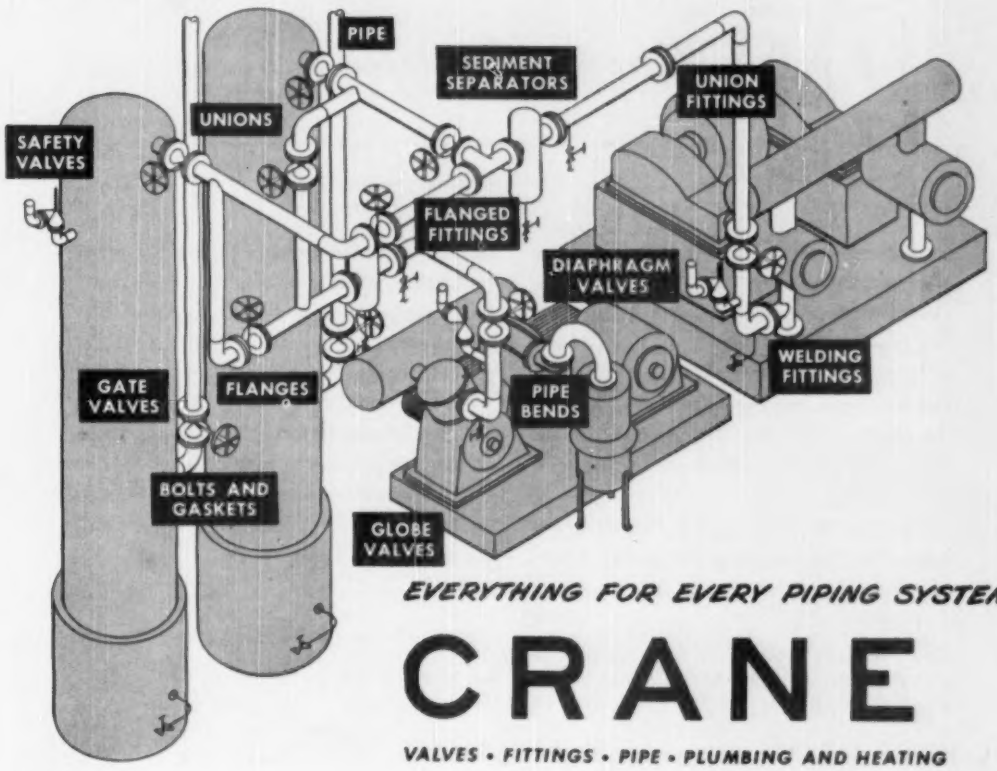
On Crane valves, the diaphragm is used only to seal the bonnet . . . is not subject to cutting, crushing and rapid wear. A separate circular disc permits positive shut-off even should the diaphragm fail. Y-pattern body design assures greater flow capacity, minimizes pressure drop. Crane separate disc-diaphragm design reduces appreciably the torque required to operate these valves. For further information, WRITE FOR CIRCULAR AD-1761.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas



WORKING PRESSURES:
Up to 150 pounds water, oil, air or gas—180° F. max. temp. Sizes up to 6 in. Screwed or flanged ends.

ONE ORDER TO CRANE COVERS ALL PIPING NEEDS...
FOR THIS AIR COMPRESSOR INSTALLATION, FOR EXAMPLE



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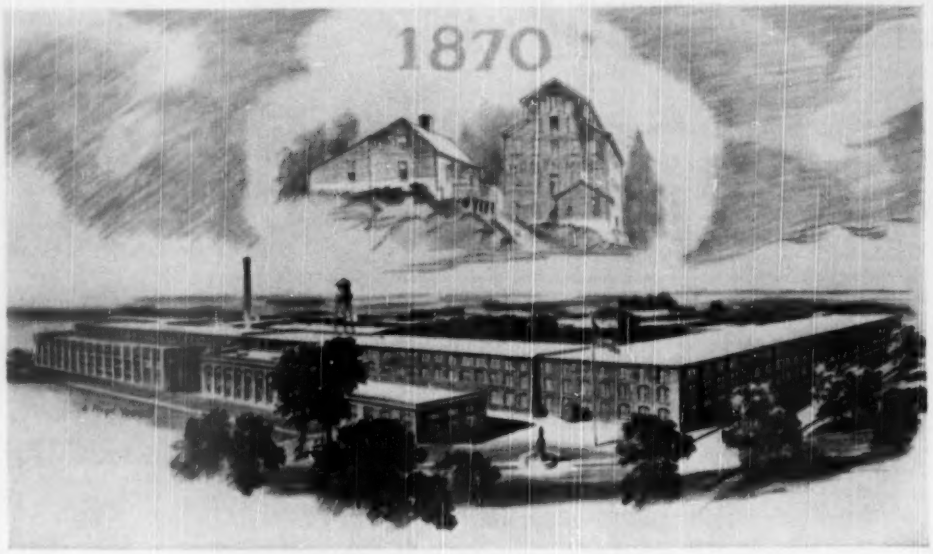

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They operate more hours between grinds . . . Manufactured from special analysis, electric-induction steel, Heppenstall Knives are built for rugged, heavy duty service. They withstand heavy feeds and cuts in high heat, yet hold their keen edges longer.

2

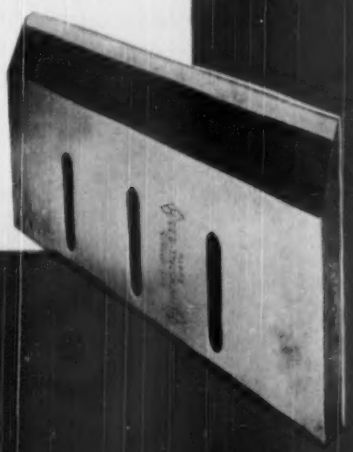
They take more grinds per knife . . . Quality steel, correct design, and precision finishing result in longer useful service life. Chipper "down-time" for knife maintenance is held to a minimum.

3

They give greater yield and uniformly high-quality pulp . . . Retaining their keen edges during long runs, Heppenstall Knives cut cleanly and reduce logs to easily digested chips—with fewer oversize chips and little sawdust waste.

If you are seeking lower chip costs, investigate the advantages of Heppenstall E. I. S. Chipper Knives. Heppenstall Company, Pittsburgh 1, Pennsylvania.

*For quick identification, look for the new Tan Color on edges of Heppenstall Knives and ends of shipping boxes.



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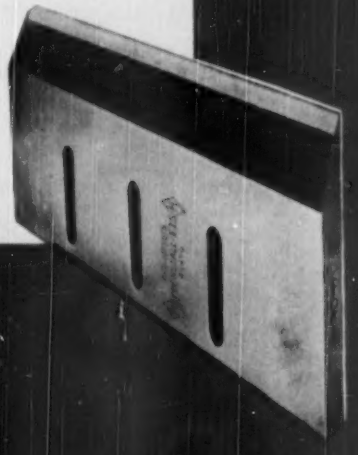


Aerial view of the Puget Sound Pulp and Timber Company's plant on deep water at Bellingham, Washington. Although this company and its antecedents are credited with pioneering the wood pulp industry in the Pacific Northwest, its present plant is modern and up to date in all respects. It's production capacity is three hundred and sixty tons of unbleached sulphite pulp daily, plus extensive by-product output.

PUGET SOUND
PULP & TIMBER COMPANY
BELLINGHAM • WASHINGTON

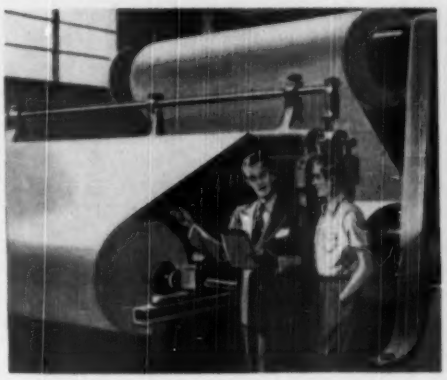
Paper Product Pointers
FROM CYANAMID

Re: Wider Markets for Paper...

Cyanamid's Technical Service Staff Helps Manufacturers Develop New Papers and Improve Quality of Their Products

Our Technical Service Staff is available to help manufacturers develop new papers through the proper application of Cyanamid chemical products. Present papers may be improved quality-wise and processes made more efficient through their experienced counsel.

If you have a "paper" problem, the services of the Technical Service Staff are at your call with no obligation. The specialized skill and experience of these paper chemical specialists, backed by our Stamford Research Laboratories, are as essential a component of our products as are the quality and uniformity inherent in every batch of Cyanamid paper chemicals.



Look us up at the TAPPI Meeting in New York in February. We will be glad to discuss your paper chemical problems with you.

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Here is a valve that not only meets the severe test of handling corrosive fluids, but actually takes the place of two valves while doing it. This double duty valve is the *ESCO* Screw Down Swing Check, an exclusive *ESCO* development which takes the place of both the conventional swing check and globe stop valves.

In fully open position it is a freely swinging check valve. Screwed down it will either throttle or stop flow. The economy of one long-lasting, easily-operated valve instead of two separate pieces of equipment is obvious. Sizes range from 4 inches to 12 inches.

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ESCO Screw Down Swing Check valves are cast of corrosion resisting stainless steel. Standard analyses are available for common corrosives, and for the unusual problem *ESCO* can produce a special analysis to meet particular conditions of service.

BUILT FOR LONG LIFE, LOW MAINTENANCE

The *ESCO* Screw Down Swing Check valve embodies the most approved features of design including outside screw and yoke construction, high disc lift, smooth disc contours, unrestricted port openings and large diameter seats. These features promote long service life, low maintenance costs and trouble-free operation.

Ask for Illustrated Literature

The new *ESCO* catalog, "Stainless and High Alloy Steels in Process Equipment" illustrates other *ESCO* valves, and gives detail drawings and dimensions. Also included is data on resistance of *ESCO* stainless alloys to a variety of corrosive agents. Get a copy of this catalog from your nearest *ESCO* representative, or use the coupon below . . . Electric Steel Foundry, 2166 N.W. 25th Avenue, Portland 10, Oregon. Offices in Eugene, Oregon; Chicago; Honolulu; Houston; Los Angeles; New York; San Francisco; Seattle; Spokane. In Canada . . . *ESCO* Limited, Vancouver, B.C.

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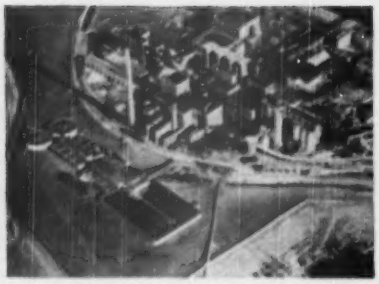

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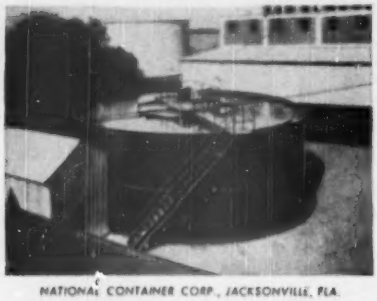
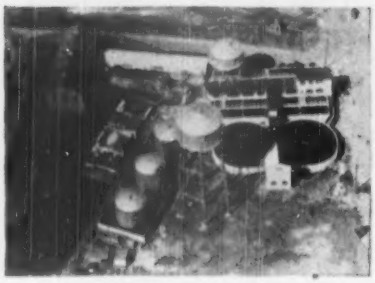


NATIONAL CONTAINER CORP., JACKSONVILLE, FLA.



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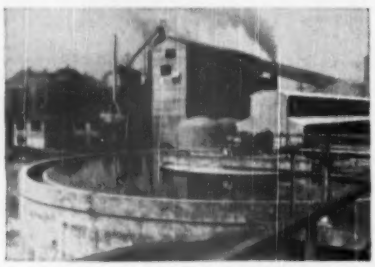

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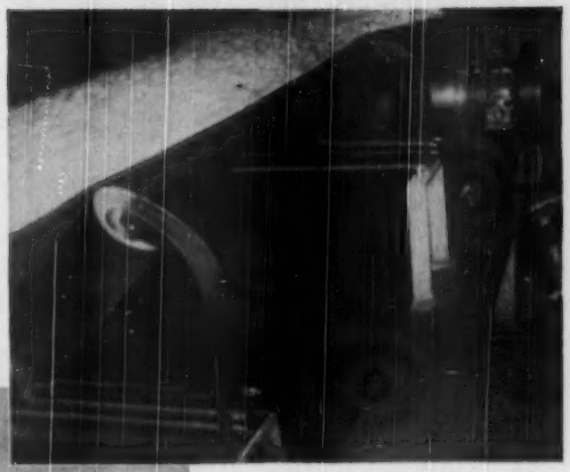
INFILCO INC.

SALES OFFICES IN TWENTY SIX PRINCIPAL CITIES

WORLD'S LEADING MANUFACTURERS OF WATER CONDITIONING AND WASTE TREATING EQUIPMENT

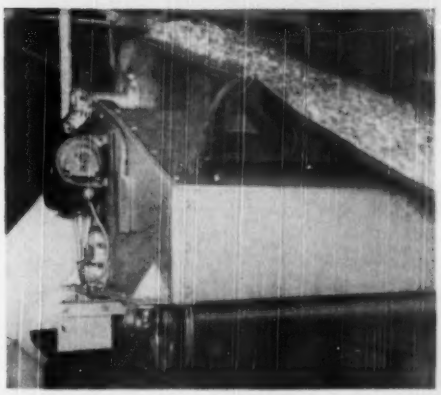
MOVE MORE MATERIAL on LINK-BELT 45° BELT CONVEYOR IDLERS →



Illustrating the high capacity obtainable with 45° idlers without spillage.

Equipped with 45° idlers, this 24 inch wide belt conveyor handles wood chips from chipper to storage bins.

Greater all-round efficiency of belt conveyors is reported by mills, where Link-Belt 45 degree troughing idlers have been in use for the past several years.



45° idler forming part of Link-Belt motor driven tripper on 48 inch wide belt conveyor delivering wood chips to storage bins.

The carrying capacity for a given belt width is increased, or a narrower belt can be used to handle a given volume. With self-aligning idlers installed at recommended intervals, the belt is protected and preserved from damage, excess wear, spilling or below-capacity loading, due to misalignment.

Link-Belt 45° troughing idlers are available in two styles: with *unequal length rolls*, the center roll being longer than the two end rolls, the latter being of equal length, and with *equal length rolls*, where all three rolls are of equal length.

The unequal length idlers accommodate belt widths up to 60 inches. The equal length idlers accommodate belts up to 72 inches wide.

Let Link-Belt engineers show you how the 45° troughing idlers can increase your handling capacity and reduce costs.

LINK-BELT COMPANY
PACIFIC DIVISION
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LINK-BELT
BELT CONVEYOR EQUIPMENT
IDLERS • TRIPPERS • BELTS • PULLEYS • BEARINGS • DRIVES

NEW RPM DELO OILS
cut engine wear-rate up to 85%

New RPM DELO Lubricating Oils contain advanced, special compounding. Proved in actual operation, they keep engines cleaner, increase protection and extend overhaul periods of all heavy-duty engines.

Cut liner wear rate up to 85%. In service under extreme operation conditions, these new RPM DELO Oils reduced wear-rates up to 85% over conventional heavy-duty type lubricants.

Reduced engine deposits as much as 75%. Superior compounding in new RPM DELO Oils kept top-ring grooves, oil rings, and skirt areas of pistons remarkably clean in high-temperature, high-output truck and tractor engines.

Saved 40% to 60% on maintenance. Records show that new RPM DELO Oils cut maintenance costs as much as 60%, reduced oil consumption 30% to 50% over the long run.

Proved in full range of engine service. This new line covers normal to extremely severe conditions. The grade that meets your needs will double protection against lubrication failures, give you all-around better engine performance.

RPM DELO Heavy Duty Lubricating Oil
A new, high quality-level compounded oil recommended for heavy-duty diesel or gasoline engines in normal to difficult service. (Meets U. S. Army Specification 2-104B.)

RPM DELO Special Lubricating Oil
Companion product to RPM DELO Heavy Duty Lubricating Oil. Has higher viscosity index for special operating conditions. (Also meets U. S. Army Specification 2-104B.)

RPM DELO Supercharged—1 Lubricating Oil
An entirely new product of higher quality-level than the products above. Fortified with new, more powerful compounding. Recommended for severe and abnormal engine service. (Meets U. S. Army Specification 2-104B, Supplemental List No. 1.)

RPM DELO Supercharged—2 Lubricating Oil
Highest quality-level oil, designed for extremely severe operating conditions. (Meets U. S. Army Specification 2-104B, Supplemental List No. 2, also the rigid requirements of Caterpillar Tractor Company's Superior Lubricants—Series 2.)

Send for the full report on new RPM DELO Oils. For complete information, call your local Standard Representative or write to Standard Oil Company of California, 225 Bush St., San Francisco 20, California, today.

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RPM DELO LUBRICATING OILS

New and more Efficient-Compounding keeps engines cleaner, increases protection, extends overhaul period

Western Precipitation
COTTRELL
again selected by
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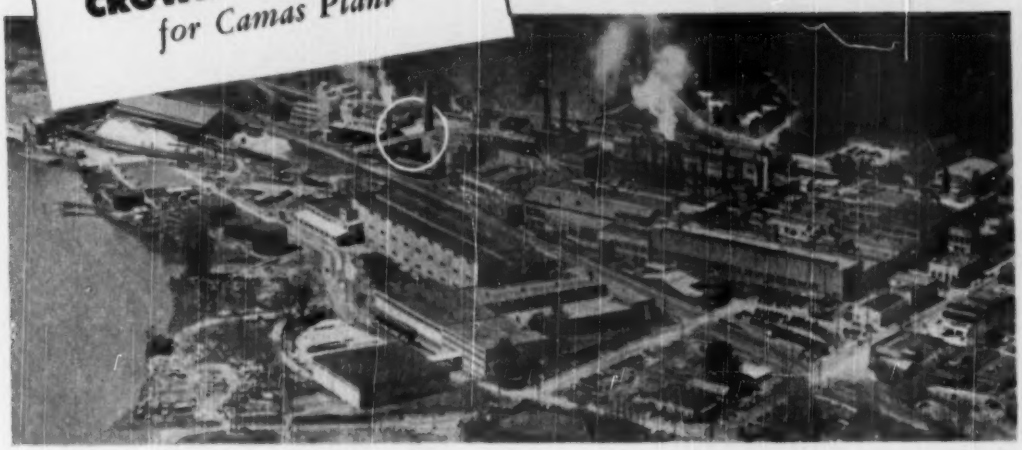

New Camas recovery unit one of many successful Western Precipitation paper installations...

WESTERN PRECIPITATION is the organization that—more than 30 years ago—pioneered the first successful application of COTTRELL equipment for collecting soda ash from the recovery furnaces in paper plant operations. And through the years Western Precipitation has continued its leadership in COTTRELL installations with one important development after another.

One of the latest Western Precipitation paper installations is the COTTRELL unit recently completed for Crown-Zellerbach for their kraft plant at Camas. This COTTRELL, recovering soda salts from the black liquor furnace gases, is only one of the Western Precipitation COTTRELL units chosen by Crown-Zellerbach for their paper mills.

In fact, at the Camas plant itself another Western Precipitation COTTRELL unit has been in successful operation for some 8 years, and the success of this installation was an important factor in the decision of Crown-Zellerbach to again install a Western Precipitation COTTRELL in the newly completed expansion to their Camas kraft mill operations.

Throughout the paper industry many other companies have also selected Western Precipitation COTTRELL equipment for their kraft mill recovery units, and the invaluable experience gained through the years by the Western Precipitation organization in this specialized field can be helpful to any paper plant contemplating installation of recovery equipment. Let our engineers study your particular requirements and make recommendations based on over 30 years of first-hand experience in the paper industry—more than 40 years in the design and construction of COTTRELL equipment for all types of industrial applications.

Send for descriptive literature on COTTRELL *equipment*

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In addition to its extensive use in boxboard and wrapping papers, METHYLENE BLUE 2B CONC. produces shades varying from light blues and grays to deep and medium blues on kraft, tissue, boxboard and poster paper. Used in conjunction with METHYL VIOLET 4 PBX CONC., and GREEN MX CONC., it produces light and deep blues and violets. It is applied to both sized and unsized papers, and when treated with tannic acid, its light fastness is much improved.

Have you a problem about the application of color to paper? Consult your Calco representative. He will be glad to assist you and make recommendations from Calco's wide range of paper colors.

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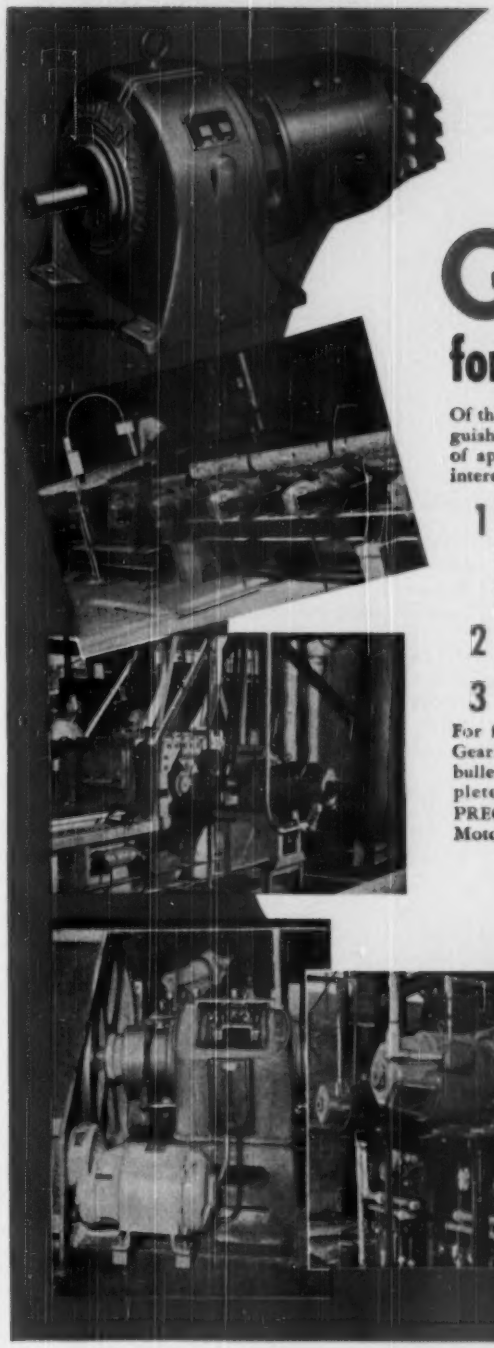

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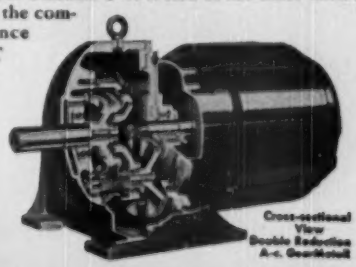
for outstanding performance

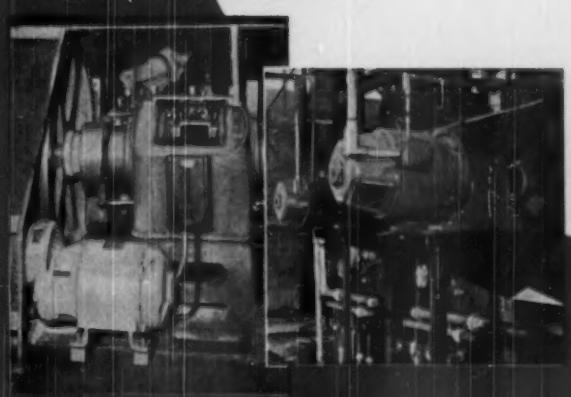
Of the many design and construction features which have distinguished the performance of Reliance GearMotoRs in every type of application in every industry, here are some which should interest you:

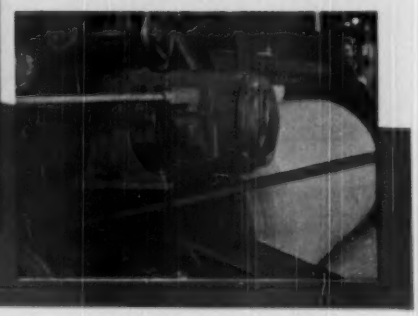
1. Helical, wear-hardened gears cut from alloy steel forgings and shaved before hardening for correct eccentricity and helical angle and bright, smooth surfaces—factors contributing to quiet operation and longer life.
2. Gear arrangement in simple train minimizes number of moving parts—promotes quietness.
3. Pinion and gear supported and spaced to reduce deflection—permits high load-carrying capacity.
4. Splash system with large oil reservoir assures constant and thorough lubrication of all parts.
5. Anti-friction bearing construction throughout.
6. Reliance *Precision-Built* Motors provide the maximum in dependable and economical power.

For facts on other proved-in-service advantages of Reliance GearMotoRs, write for Bulletin C-404. Ask at the same time for bulletins describing the complete line of Reliance PRECISION-BUILT Motors.



Cross-sectional View Double Reduction A-c. GearMotor





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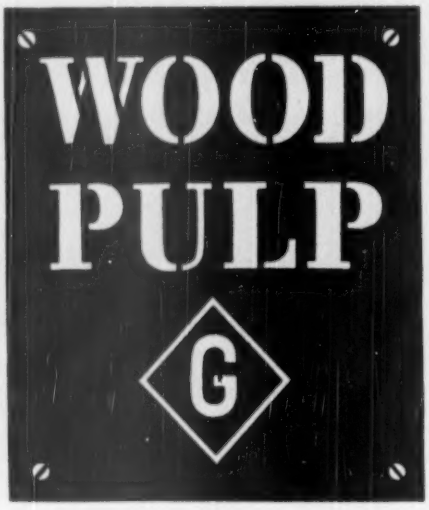

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FRANCIS BACON

1950 offers American papermakers many problems, challenges—and opportunities.

You will find it worthwhile to call us in to go over your woodpulp needs and program whether it be for American, Canadian or Swedish brands.

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PULP & PAPER

FEBRUARY 1950
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Member Audit Bureau of Circulations

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The Production and Management Journal Covering North America's Wood Pulp, Paper, Paperboard and Cellulose Industries

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"The Cellulose Age"

EDITORIALS

Good "Devaluation" News

Price isn't everything!

The Clondalkin Paper Mills of Dublin, Ireland, in its annual report, says that despite their currency devaluation in Europe resulting in higher U. S. prices for them, the delivery dates for machinery ordered from the United States are so favorable that the directors feel justified in ordering additional machinery from the American market.

A Forecast—Officially Reported

Official statement: "According to reports from U. S. Commerce Dept. field offices, most (pulp and paper) industry leaders look for a maintenance of a good demand and high level output through the first half of 1950. This period, they expect, will be devoid of pressing current problems and give important executives an opportunity to study developments for the years ahead."

Will government give a fair hearing to these executives' views and act upon their recommendations? Some branches of government have done so—but not some important ones.

Best Smeller?

The idea of scented printing inks is not at all new, but recently there was published what we believe is the first book to use scented ink. It was a specialized volume whose title and subject we do not recall, but we remember the scent was that of pine. Any experienced bookseller will tell you that he would not be at all astonished to have a customer ask for a book by its scent rather than title and author. That Forever Amber lady, already famous, may yet be the one to write the first Best Smeller.

Another evidence that the olfactory sense is becoming increasingly important to the paper industry was indicated the other day when a doctor found that a patient's hay-fever was aggravated whenever he encountered newsprint. But it was further discovered that the newsprint was innocent. The culprit was the vegetable gum used in the spray for quick drying of the ink.

Comic Books for the World

The new uses and markets for paper are one of the most fascinating phenomena of all industry. Very few of paper's uses and markets, once discovered, have disappeared. And some of those which disappeared have come to use years afterward, as for example the paper collar which came to fashion in the shoreside Navy and elsewhere during the last war.

Now comes another market and it could turn out to be a big one. The State Department is sending a test shipment of 130,000 comic books to the Far East. They tell the stories of famous Americans and the purpose is to combat the spread of Communism. Because it is calculated that each book will be read by fifty children or adults these comic books are on heavy machine finish paper rather than newsprint.

Stability of the Industry

A short editorial on the stability of the pulp and paper industry:

The oldest business corporation of any kind or of any size in the world is said to be a pulp and paper company in Sweden—Stora Kopparbergs Bergslag, A. B. It has existed continuously for 602 years! In the U. S., only some 300 of a total of about 1,240,000 corporations have survived just 100 years.

Mills Could Say "We Warned You"

In January, very suddenly, the New York *World-Telegram*, owned by Scripps-Howard interests, bought the 117-year old New York *Sun* and combined it immediately with the "Telegram." Public reasons given by the *Sun* for the sell-out was the increased cost of newsprint and the prohibitive cost of labor. Labor unions immediately protested, pointing out that other New York papers managed well enough. Naturally, the newsprint mills were silent—but their memories were long. That is, the few newsprint mills left in the U. S. plus those that gave up making it.

A Boost for Paper Milk Bottles

The milk container industry got a big boost in the greater New York area in January from Manhattan officials who called representatives of dairies together and advised them to use milk cartons instead of bottles. Reason: New York's serious water shortage—bottle washing must be curbed.

The plea of the New York officials was for the long range. The city is still growing fast, the water situation is not improving. And there are teeth in the city plea to dairies.

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MACHINE TENDER Munchausen Stories

In this corner each month, PULP & PAPER publishes the "tallest tales" it can gather from pulp and paper industry men. As everyone knows there just aren't any better story-tellers. Try your hand at it—send us a story.

You may like to look up previous stories for an inspiration. The one in September (page 42), from a mill manager in Mexico, told about a mule-driven paper machine. The one in October (page 26), from a superintendent in Tasmania, told of the strange results when a mill used barnyard fertilizer for a furnish. The November story (page 30), was about a hairy Scotch beaterman whose whiskers caught in the beater bars, with the result that the mill ran door mats for a week!

The December story (page 28) relates the amazing resourcefulness of any early day rayon pulp mill cook's helper who had just invented a way to blow ladies' bloomers directly from the digester when they went out of style.

January's came from an Arkansas mill executive—about how an Indian became a great man in his village twinkling a switchboard of red and green lights in a mill.

PULP & PAPER pays $5 for each story published and no questions asked; and we assure you the story does not have to contain even a shred of truth.

Maybe these stories will inspire you to try your hand.

How about a tall story from you?

C. J. BASTEDO
—thanks to him for this month's story of a papermaker known as Nosey.

For this corner this month, we have a story from Cecil J. Bastedo, who worked in mills in Quebec as a young man and wound up his career as one of the most distinguished and best liked industry salesmen of western United States. He retired a few years ago as general sales manager of the container division of Longview Fibre Co., headquarters in San Francisco. He lives i nretirement at 3245 Clay St., San Francisco but he always enjoyed vacation trips to his native Canada. Way back after the First World War he started in the paper field in San Francisco as a partner in Boxboard Co., but sold out when he joined "Longfibre."

Mr. Bastedo, back in 1902, was a cub bookkeeper at the Quebec Paper Co., in Toronto. Later he worked at the company's mills in Quebec. So his career in paper extends over most of the first half of the 20th century in two nations. So he has a great fund of rollicking papermakers' stories and we won't be satisfied till he sends us another one!

Here's his number one contribution:

Strange Tale of a Long-Armed Papermaker

When I worked in mills in Quebec, there was a tramp papermaker whom we will call "Nosey" and this story is about him. Incidentally, strange as it may seem, this story is true.

Like most tramp papermakers, "Nosey" knew his business but also liked his liquor. Coming to work one morning at a small mill in New York state with a gorgeous hangover he was fired by the Super. Instead of going into the office to get his time Nosey was seen to go down by the river which ran back of the mill.

They had a four-cylinder machine in this mill and were running a white lined chip board. Later the super saw "Nosey" loafing around the wet end and ran him out of the mill. Shortly afterward, bare spots appeared in the white lining, and try what they would, no one seemed to be able to find the trouble.

A few hours later "Nosey" came into the mill and said to the Super. "I hear that you are having trouble on the machine."

What the Boss said could not be printed so "Nosey" said: I tell you what I will do. You give me ten dollars and I will stop the trouble."

After some argument the Super gave him the ten dollars. "Nosey" took off his coat, rolled up his sleeves and started fishing as far as he could reach in the vat. Suddenly he came up with something in his hand.

"There's your trouble," he said, as he showed the Super a small turtle and then he ducked and ran for the door.

Incidently Nosey's arms were so long that he could clasp his hands behind him, sit on them and lift himself off the floor.

Paper Snow Fences Proposed

Alexander Koroleff, director of woodlands research, Pulp and Paper Research Institute, Montreal, has issued a paper to member companies pointing out that, as a result of wartime experiments in Germany, snow fences made of paper mesh may be added to the long list of valuable products of the pulp industry. Webbing of the fences was composed of spin paper creosoted.

Production Continues At Record High

Preliminary estimates of the American Paper and Pulp Association indicate that paper and board production for last November reached a new high. Previously, October had established an all-time high of 1,949,000 tons.

T. NOEL BLAND (left) elected President of Fibreboard Products Inc., San Francisco, succeeding D. H. Patterson, Jr., who retired after 50 years in board industry. Mr. Bland, with Fibreboard and predecessors 28 years, was Vice Pres. Directors were increased from 9 to 11 with election of C. G. Gibson, Executive Vice Pres. of Parrafine Cos., and A. B. Layton, Vice Pres. of Crown Zellerbach.

JOHN D. COWAN (right), elected Vice President of West Virginia Pulp & Paper Co., New York. Starting as a chemist in 1929, Mr. Cowan, who is 43, rose through various positions in the Luke, Md., and Charleston, S. C., mills, to Asst. Mgr. of the latter, and recently had special technical and economic assignments in New York headquarters. He was born in McKeesport, Pa., graduated from Penn. State.

More Cuts in Paper Tariffs Planned by State Department

The State Department has officially announced that international conferences will be held early in 1950 looking toward a new round of tariff reductions. Actual negotiations are tentatively scheduled for September 1950. In the interim, it was said, the American industry will be given an opportunity to present arguments relative to any rate reductions which may be proposed.

A presidential proclamation putting into effect the reduced tariffs up to 50% on paper, negotiated at Annecy, France, has not yet been promulgated. Inasmuch as 30 days is usually allowed between the date of proclamation and the effective date of duty rate reductions, the new low rates on paper and paperboard will not go into effect until at least February. The delay appears to be due to procedural red tape in the international organization, according to Warren B. Bullock, manager of the Import Committee of the American Paper Industry.

British Touring U. S. Box Plants

Sixteen representatives of the British paper box industry arrived in New York Jan. 12, and began a six-week study of New York, New Jersey and Midwest methods of manufacturing cartons and boxes, sponsored by the Economic Cooperation Administration.

Here Are 1949 Figures: Not So Bad, After All!

U. S. paper production reported to the APPA (excludes exclusive newsprint mills and most board mills) averaged 88.6% of six-day capacity in 1949. Despite the '49 slump this was not far off most recent years and compares with 96.2% in 1948; 104.3% in 1947; 101.1% in 1946; 89.4% in 1945; 88.1% in 1944, and 87.8% in 1943.

Board mills reporting to the National Paperboard Assn., averaged 83% in 1949 as compared with 95% in 1948.

Machine Possibilities

"THERE ARE NO SUPERSONIC BARRIERS"

By J. E. Goodwillie
Vice President, Beloit Iron Works

A COMPREHENSIVE REVIEW

One of the most comprehensive reviews of paper machine production possibilities, all the way from distributor and headbox to reel and winder, has been written by J. E. "Bill" Goodwillie (left). For years he has been a leading contributer to authoritative literature on the engineering and operation of paper machines. He has engineered machines for many of the leading paper companies in all regions of the country, including some of the most modern machines.

From the practical point of view, this article has much information of value to mill management and machine operators as well as to companies contemplating new machines or improvements on existing ones.

Mr. Goodwillie says the ultimate in speeds is still not in view—that there are not "supersonic barriers" nor intrinsic limitations in any part of paper machines of the reaching of even higher production and efficiency.

Mr. Goodwillie made this address before the National Technical Convention in Portland, Ore., last September and this is the first publication of it.

I should like to present for your consideration some thoughts as to the nature of the limitations on paper production imposed by our present techniques. We say that a machine is limited to a certain maximum speed when running any particular sheet, and go on to specify that the limitation is imposed by some situation, as formation, drying capacity, or by some other condition prevailing on the machine in question. If an arbitrary increase in machine speed results in impairment of quality due to formation, the speed increase is unprofitable because the paper cannot be sold. Or if the speed increase results in too many breaks or other deterioration in operating efficiency, the increase may actually result in a decrease in production. A third type of limitation is that of size or capacity, as insufficient dryers to dry the sheet properly. Here we have the subdivisions of limitation as to the steam pressure that is available for, or can be safely carried in the dryers, and the limitation as to machine length or the space available. In most instances, the limiting factors can be modified or removed, and the production level of the machine consequently raised.

As background, it may be helpful to mention some of the present day operating speed ranges for machines on various types of paper. It will be understood that these figures (feet per minute) are for machines engineered and built particularly for the type and grade involved:

Greaseproof—450 to 550.
Sulfite papers—900 to 1200.
Groundwood types inc. machine coated —900 to 1200.
Newsprint—1400 to 1600.
Kraft containerboard—1200 to 1500.
Kraft paper—1400 to 1600.
Creped tissues—1500 to 2400.

From our observation of machines in operation and taking into account the changes in arrangement and design that seem fairly certain of successful incorporation into existing or new machine arrangements, we believe that these speed ranges are not limited by any real barriers to further increase. In order to indicate the kind of planning necessary for advances into the higher speed ranges, we should like to make some comments on various sections of the Fourdrinier machine but without attempting an evaluation of the results to be obtained from any change, as it is obvious that the complexity of grades and characteristics would make a detailed analysis very lengthy indeed.

Headbox and Inlet Equipment

If we were to canvass any paper mill group on the question "what section of the Fourdrinier machine imposes the greatest limitation to advance in production?" the majority would probably name the combination of distributor, headbox and slice. For successful high speed operation, it is well established that we need equipment of very substantial design to avoid deflection or change in shape under the hydraulic pressures to be maintained, and at the same time need a unit capable of precise and quite minute adjustment. Air entrained in the stock and water flow must be effectively handled; it will collect on headbox surfaces under velocity conditions that would seem certain to scour clean and, once formed into bubbles, tends to catch and form fibers in clots and strings that increase in size until they break loose and appear in the finished sheet. In addition to promoting formation of lumps, it is well known that air greatly accelerates slime formation on those surfaces against which it collects. Intermittant venting for air removal does not seem to be very effective and surprisingly large pockets will sometimes form and maintain their position quite close to a vent opening. All wetter surfaces must be readily accessible for cleaning. Last, and most important, there is the formidable hydraulic problem; the large combined flow of stock and water must be spread out to the full slice width without permitting formation of swirls or course turbulence and, at the same time, with a degree of uniform activity that will prevent stagnation and flocking in any part.

It will be sufficient to note that in recent years much progress has been made in this section of machine design. Flow quantities of over 150 gallons per minute per inch of slice width are being effectively handled in heavy production machines with very satisfactory uniformity of weight distribution and test in the finished sheet. We call attention to the fact that enclosed headbox very probably will be widely used for high speed machines and for many of more moderate speeds, because the use of a combination of pressure and static head at the slice avoids the extremely high ponds that are necessary in headboxes using static head only. Experience indicates real advantages, in that stagnant areas and flocking are eliminated. In the older static headboxes, it was impossible to maintain a uniform velocity throughout the entire depth of flow, and it has been demonstrated that this lack of uniformity promotes the formation of swirls and eddies that tend to carry through to the wire. The enclosed slice, properly engineered, gives us the opportunity to maintain uniform velocity conditions and also to control the velocity of the approach flow to the slice. In short, our experience with the enclosed slice and distributor makes us feel that it has removed the limitations that previously existed, in this section of the machine.

The Fourdrinier Section

It is not enough to have good control of the flow from the slice at all speeds and quantities of flow, if we lose control after the flow has been released upon the moving wire. The greatest formation hazard while the sheet is on the Fourdrinier wire comes, of course, in the first few feet of the table. The sheet is in a very fluid state, and rapid drainage tends to float table rolls and cause more or less violent disturbances in the forming sheet. Arrangements to prevent this disturbance vary widely with machine speed and type of sheet being run, but information gained from various types of high speed operation seem to indicate that this problem can be solved for any machine. Combinations of forming boards between breast roll and first table roll with carefully designed deflectors following most or all of the table rolls under the wire are very effective in disposing of most of the water that tends to flood the table roll nips. Dandy type table rolls and special designs of grooved rolls have been used very effectively.

For many types of sheet formation, varying degrees of pressure formation have proved to be helpful in pre-setting the initial layer of stock on the wire before the flow actually leaves the slice, with a very definite improvement in conditions out on the Fourdrinier table resulting.

Still thinking of the Fourdrinier table, the question of length of forming space has not imposed any evident limitation on further speed increases. Wire lengths of 130 ft. total, are being run efficiently on high speed machines, with no trouble either in wire changing or in actual operation. It is interesting to note that heavy weight kraft machines running wires

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WISCONSIN MILLS' DILEMMA
THE SULPHITE CRISIS

The sulfite mills of Wisconsin's Fox River Valley were not able to comply with the state order relating to stream pollution by the deadline of Dec. 31, 1949, and have asked for an extension of time.

This order required filing of plans in detail for reducing stream pollution from spent sulfite liquor to an acceptable minimum. This minimum has been inferred to be about 70% in the Fox River and Green Bay area.

The Wisconsin Pollution Committee has granted a stay of 30 days. It needs time to study the testimony of four sulfite and two non-sulfite mills at the Green Bay, Wis., hearing in December in which they asked for more time to comply.

It seems highly unlikely that any of the Wisconsin mills will be able to comply with still another major section of the order which requires that they have the stream abatement equipment installed by the end of 1950. An affirmative answer to the request for more time to submit plans for acceptance, will automatically require a change in the installation deadline.

Two companion factors, culminated in December, brought on a series of reports and commitments all related to stream pollution abatement methods.

The three-man committee of the Sulfite Pulp Manufacturer's Research League (of Wisconsin and Michigan) returned from Sweden where it investigated evaporation and burning operations of sulfite liquor in Scandinavian mills. Its report tied closely with the appearances of the mill representatives at the Green Bay hearing.

PULP & PAPER'S Middle West editor has been on the Wisconsin scene for this vital topic and brings this abbreviated report to the industry. A detailed discussion, including pictures and facts about the Rosenblad evaporator pilot operation in the Interlake mill at Appleton, will appear in the March issue.

All known methods for freeing the streams of the mill waste fall short of attaining suggested goals such as the approximate 70%.

If private industry is going to finance its problem of disposing of spent sulfite liquor without stream dumping, it must develop successful and acceptable means on a practical dollars and cents basis. The pulp market is competitive and it must ultimately absorb its share of the cost of new installations of any kind.

Taking an outsider's look at the Wisconsin situation it would seem that the commitment offer of the Hoberg Paper Mills at the hearing keynotes the course of action for the mills. At the same time it affords the state committee and the anti-pollutionist forces an excellent chance to objectively study the situation under actual industry conditions.

J. M. Conway, president of Hoberg—also president of the Research League—stated, on behalf of the Hoberg company:

"We have elected to submit plans and to propose construction of a treatment plant, notwithstanding that pollution abatement at the beginning will be only partial. We are willing to assume this responsibility because we feel that a satisfactory solution will not be forthcoming until some type of full-scale plant is put into operation. The plans will be submitted by Dec. 30, 1950.

"If the plans submitted are approved by the committee, construction will begin under them."

What Method?

Two ways of dispensing with the spent sulfite liquor (while retaining the calcium base) have given the Research League members the greatest hope of achieving eventual satisfactory stream abatement results. One is the animal feed yeast operation. The league has tried and observed this way at its experimental plant at Rhinelander.

The second promising means is the evaporating and burning process which was so thoroughly investigated by the League's men during the Sweden trip and reported in the January issue of **PULP & PAPER**. The league is currently operating a pilot plant at Interlake calcium-base sulfite mill in Appleton, using a Rosenblad evaporator. Probably, Hoberg's engineers will draw plans and submit recommendations along the lines of one of these two systems.

However, the evaporate-and-burn

(Continued on page 80)

Wisconsin's First Pollution Director Under New Orders

Theodore F. Wisniewski, 41, U. of Wisconsin graduate and state health board engineer since 1937, has been appointed Wisconsin's first pollution control director under an expanded anti-pollution program ordered by the 1949 legislature.

The anti-pollution committee announced his selection over two other nominees from six applicants—the other finalists being E. J. Beatty, Sheboygan, city engineer, and Frank J. McKee, sanitary engineer of Kraft Food Co., Chicago.

MILLS GIVEN 18 MONTHS
State Commission Reverses Stand

The Washington State Pollution Commission reversed itself after what was described as "a special meeting" in Gov. Arthur B. Langlie's office in Olympia, Wash., Jan. 3, by issuing a 2-point order to four major pulp and paper mills in Washington state: Crown Zellerbach at Camas; Soundview Pulp Co. at Everett; Weyerhaeuser Timber Co. at Everett, and Rayonier Incorporated at Hoquiam. The two points were:

1. To submit within 15 days plans for control of their sulfite waste liquor.

2. To substantially complete the construction of control installations by Sept. 1, 1951.

This development came with shocking suddenness less than two months after both the state pollution committee chairman and the state director of fisheries, both Langlie appointees, had testified (Nov. 8) before a federal pollution hearing in Seattle that they wished to collect their own scientific data on the extent of pollution in Puget Sound areas in particular (that is, Everett; and presumably at Camas and Hoquiam, too) before recommending remedies which they, at that time, admitted might involve great expenditures without solving the problem satisfactorily.

By their statements they indicated research by pulp mills, by newspapers, by sportsmen's groups, and even previous research by their own technicians, was not conclusive to them.

The Hearst-owned Seattle Post-Intelligencer, in its report on the meeting, implied that these men had not even conceded there was any pollution (which, of course, they had) and attacked their testimony editorially. When the state committee reversed itself Jan. 5, the "P-I" followed up with another editorial boasting that its long and sensational editorial campaign on pollution had brought this about-face.

U. M. Dickey, president of Soundview, biggest market sulfite pulp mill in the world, said his company has worked on the problem for years and hopes to have it "licked" in the 18-months time limit, but if not, he said it means "closing down the Washington pulp mills" on which many eastern U. S. paper mills are dependent for some of their pulp supply.

Howard Morgan, manager of Weyerhaeuser's pulp division, said there are a lot of problems involved in the new magnesia base recovery system pioneered at Weyerhaeuser's Longview mill and its high cost might "crush smaller mills."

McDonald S. Denman, Crown Z vice president, said the magnesia system "is an expensive system and its success hasn't been proved yet." He said that his company has just under way a new experimental plant at its Lebanon, Ore., mill, which is "in still a highly experimental stage."

SINCLAIR TO SANSOME ST.
Four New C-Z Mill Managers

In very recent years, Crown Zellerbach Corp. started a more intensive policy of shifting mill managers and other top management men around "the circuit" of its various mills and headquarters offices, in order to give them more comprehensive experience in varied types of pulp and paper operations. The company is rapidly building up a top-flight team of highly versatile managers.

The policy must be paying off as, just before he returned in mid-January to resume his duties as Marshall Plan administrator in Italy, President J. D. Zellerbach announced another major shifting of management men involving No. 1 jobs in four mills:

Peter T. Sinclair (above), resident manager at West Linn, Ore., was promoted to staff assistant of manufacturing in San Francisco headquarters.

Malcolm J. Otis retires as resident manager at Port Angeles, Wash., and becomes resident manager at West Linn.

Ray Schadt retires as resident manager at Carthage, N. Y., and becomes resident manager at Port Angeles.

George H. Gallaway retires as resident manager at Lebanon, Ore., and becomes resident manager at Carthage.

Herbert Wymore, who worked up from laborer at Camas in 1938 to technical assistant to the paper mill superintendent, and who has been on special assignment at Lebanon and other mills, joins the ranks of managers by taking over the top Lebanon position. His technical work has been published in recent years in **PULP & PAPER**.

Mr. Gallaway makes the first move—to New York—and Mr. Sinclair will be the last to move. He has had the important job of locally directing the postwar changeover at the big West Linn mill from primarily a newsprint to one of the nation's major machine-coated paper producers.

All the men are college grads. Malcolm Otis, (right) U. of Washington, joined C-Z at Camas in 1920, held various engineering and superintendents posts in several mills, was assistant to the late Vice President Albert Bankus, and manager at Lebanon before moving to Port Angeles in 1947.

Mr. Sinclair, Oregon State College '18, began as an electrical engineer at Port Townsend, moved to Port Angeles and Carthage, where he became manager until assigned to study machine-coating for West Linn in 1944, as assistant manager, and then became manager for the changeover in '47.

Mr. Schadt, U. of Washington, joined at Port Angeles in 1923 as chief chemist and, aside from an 8-year interlude with other companies, and duty as U. S. major in the war, held positions at Camas and San Francisco, becoming Cathage manager in 1944.

Mr. Gallaway, Oregon State, started as pulp tester at Camas in 1933, worked up to the top technical position there and became Lebanon manager in 1947.

Mill Managers involved in Crown Zellerbach personnel shifts include: (l. to r.): GEORGE H. GALLAWAY, who goes to Carthage, N. Y.; HERBERT WYMORE, who takes over at Lebanon, Ore.; and RAY SCHADT, who moves to Port Angeles.

WORK BEGINS ON NEW POTLATCH MILL IN IDAHO

Construction of the Potlatch Forests, Inc., 230-ton kraft pulp and paper mill at Lewiston, Ida., was to begin Jan. 15, President William P. Davis announced as this issue went to press. Contract was let to Park & Sons of Yakima. The paper machine contract also was let. The mill is to be completed Jan. 1, 1951.

Mr. Davis is former assistant to production manager and former chief engineer of all 8 International Paper mills in the South.

Scott Changes in Top Positions at Five Mills

Important top management changes in personnel are announced by Scott Paper Co. Darcy B. Wilkinson (left) formerly vice president and general manager at the Marinette plant has been transferred to the Fort Edwards, N.Y., mill where he replaces John B. Hay as vice president in charge of operations. Mr. Hay (middle) becomes manager of the Hoboken, N.J., plant and Russell M. Heath (right) general manager of the Cut-Rite Division (which formerly included the Hoboken and Sandusky mills) goes to Marinette as plant manager.

Paul C. Baldwin, manager of the Chester, Pa., mill, now devotes a large share of his time to assisting the general manager of paper mills; and John W. McNichol has been promoted from production manager at Chester to assistant plant manager. Henry S. Godshall, Chester maintenance engineer, is now manager at Sandusky, O. Roderick Sears, Hoboken plant superintendent, has moved to Glens Falls, N. Y., as plant manager.

ZELLERBACH RETURNS TO ITALY

J. D. Zellerbach, on leave as president of Crown Zellerbach Corp., who has already served a year and a half as Marshall Plan administrator in Italy, returned to that post in Rome in mid-January for an indefinite period.

In a series of addresses in December and January before audiences of leading citizens of all the major Pacific Coast cities, he said "the Marshall Plan has created a better and stronger Europe, has made war there less likely than 18 months ago, has been a major factor in the decline of communism.

"We can't falter now," he said, "we must finish the job. We must put a roof on the house we have built."

Europe will need no further aid when it sells $3 to $4 billion dollars worth of its goods to the U. S., instead of the present $1 billion, and "and there are still tariff reductions that could be made; and restrictions that could be lifted, to bring more variety into our markets with attractive European goods."

"VERY ENCOURAGED WITH CONDITIONS IN ITALY," J. D. Zellerbach, President of Crown Zellerbach Corp. and Chief of the Economic Cooperation Administration's Mission to Italy, returned with Mrs. Zellerbach by American Airlines to San Francisco Nov. 17 from Rome. They were met by Baron Filippo Musi Falconi (left), Italian Consul General.

GIBRALTAR'S NEW MILL

SPECIAL ATTENTION TO ENGINEERING

Now in full operation is the first paper mill to be built in the Northeast boxboard industry in more than two decades—the modern plant of Gibraltar Corrugated Paper Co. at North Bergen, N. J.

Gibraltar has been operating its box plant in the Jersey location for 25 years and was one of the first major industries to locate in North Bergen. But Gibraltar was a famous shipping container name in Brooklyn, N. Y., before that, and it is only a coincidence that alongside the present integrated manufacturing operation in North Bergen is a natural rock formation which strongly resembles the outlines of the Rock of Gibraltar.

Until January 1947 the Gibraltar organization purchased all its paper for conversion. It was then that the present mill went into operation, but in the intervening time a steady series of improvements have been under way. The mill as it stands today can be said to have started in the summer of this year. It is furnishing the 9-point paper requirements of the company at the present time and liner stock can also be made on the machine. Newest development is a coated book paper laminated on 12-point kraft for food wrap, this work being done on a new laminating machine of Gibraltar design.

Gibraltar has traditionally marketed its product nationally among these and other industries: Glassware, drugs, food, distillers and brewers, radio and television (which has become a sizable market), textiles, hardware, paper cups, electrical, soaps and detergents, wire, roofing materials, to name only a few. The products of the most famous names in industry are carried in Gibraltar containers, and Gibraltar ships as far south as Georgia, as far north as Maine, and west into California. Gibraltar ranks among the ten top producers of 9 pt. board in the nation.

Samuel Katz, a widely known figure in the boxboard industry, has headed Gibraltar for many years. He is assisted by Willis O. Snyder and Harry S. Cole, vice-presidents; Fred Schneider, treasurer; L. A. Lake, comptroller; John J. Verwayen, in charge of production maintenance and Charles N. Katz, building maintenance. Two sons of Samuel Katz are now active in the company, Arthur J. and William P. Katz, respectively, working in both production and sales. Edward F. Manogue is superintendent of the new paper mill, and Edward A. Taub is superintendent of the box plant.

The paper mill, which averages 110 tons per 24 hours on a five-day week basis (and will soon go to six days), takes up about one-third of the 300,000 square feet of manufacturing space which comprise the joined operation. The site is ideal for both motor truck transportation and rail facilities of the West Shore Railroad of the New York Central and Erie. Four cars can be handled at the paper mill; ten cars at one time on the Erie siding. Eighteen motor trucks can be handled at one time in the truck areas and bays.

Indicative of the extreme care with which the plant was built and engineered are the names of those who took part in its construction development. These included Arno Nickerson, consultant paper chemist; Herman L. Joachim, pulp and paper consultant; Alvin Johnson and Frederick Wierk, now operating independently as consultants; Merrit, Chapman & Scott; and Myers, Fuller and Addington on power and steam.

Fed by the new mill and other suppliers, the modern box plant is able to turn out a record square footage of finished products in the shape of combined corrugated board—a record of which Gibraltar is proud. To achieve this has meant that the company has had to be alert in sales and marketing as well as production, so it is not surprising that the North Bergen set-up includes a modern laboratory, package engineering facilities and personnel, and a sample department where customer and mill men may discuss mutual problems. It is interesting to note that Gibraltar was one of the pioneers in several phases of packaging. One example has been in the field of pre-packaging of tomatoes and apples.

While this article concentrates on the new paper mill, it is worthy of note that production improvements are steadily being made in the box plant as well. Recently the box division installed one 85-inch Samuel Langston and one 78¼-inch Swift combining machines in parallel lines, and notable here, too, are the new enclosed Reliance drives which individually power each corrugating machine.

AIR VIEW OF GIBRALTAR CORRUGATED PAPER CO., Inc., North Bergen, N. J. This is first paper mill for the Northeast boxboard industry built in about 20 years.

Flow Description

The mill building is modern, functional stucco and concrete construction with unusual window areas for natural lighting.

Raw supply is transported by trucks to the Shartle-Dilts 20-foot Hydrapulper which is fed by an inclined motorized conveyor. A picture of Towmotor truck used in the mill is published with this article. Stock is cleaned through Nichols vortraps, and the screening layout is comprised of two Impco screens and one rotary screen. The filler dump chest, the liner chest, the liner machine chest, and the filler machine chest are all by Stebbins Engineering.

There are also a Bird consistency regu-

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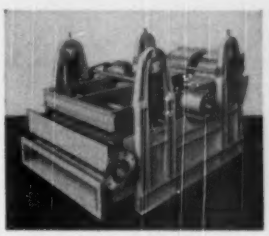
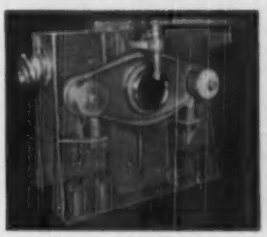


Bird Jonsson Screens for taking the dirt, knots, bark, shives, etc., out of pulp before it is broken up into hard-to-remove specks.



Bird Vibrator Screens for quality screening of bleached or unbleached pulp — 50 tons of 1.4% stock per day, with .012" plates.

Bird Rotary Screens — standard equipment on 90% of all the paper machines in North America — essential for continuous, maximum output of uniformly good paper.

← **Bird Centrifiners** for triple centrifugal treatment to remove dirt specks, metal, rubber, etc., from writings, condenser and specialty papers.

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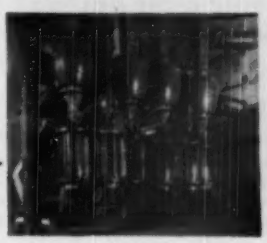

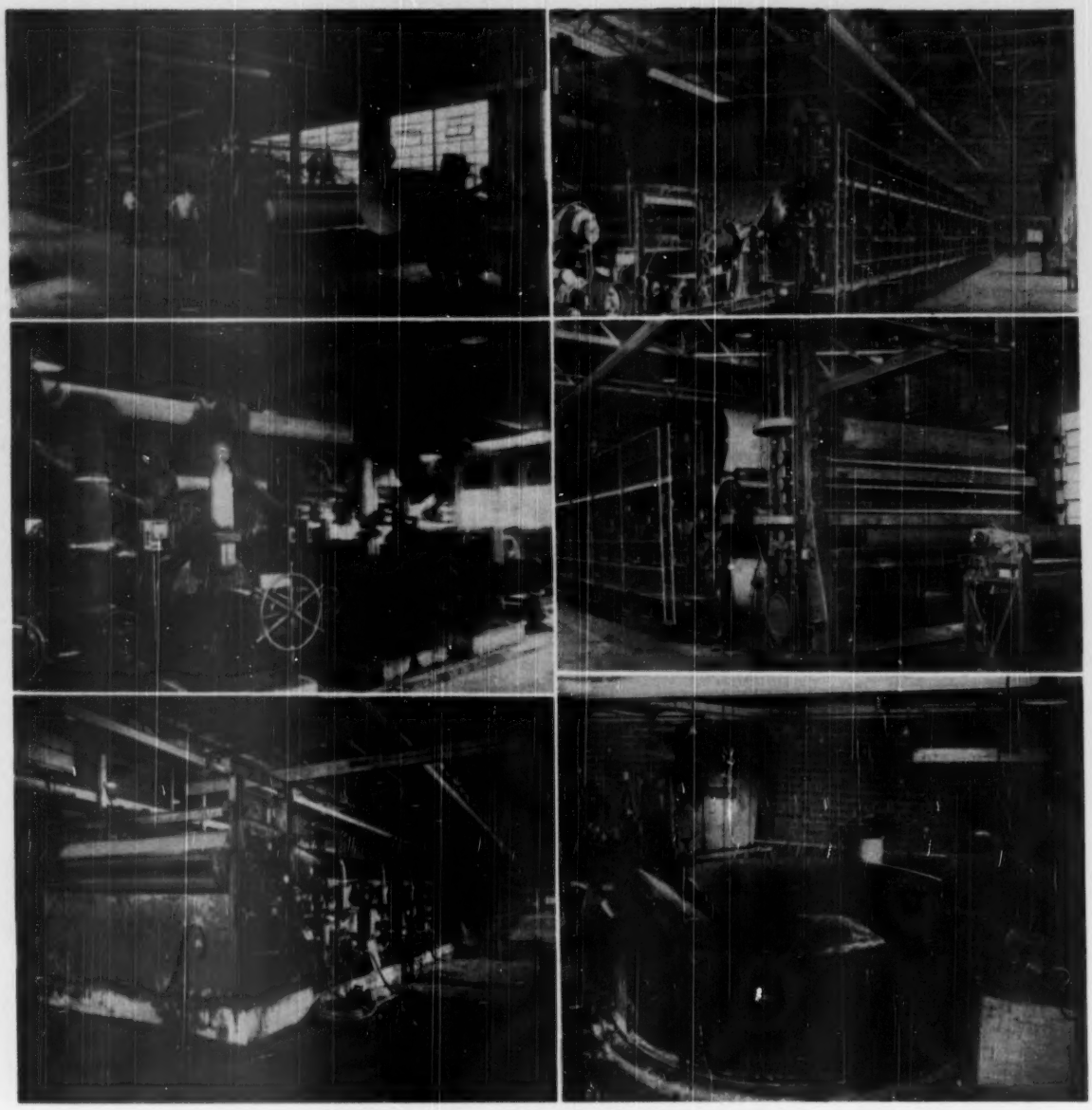

MORE GIBRALTAR EQUIPMENT PICTURES APPEAR ON PAGE 34

GIBRALTAR INSIDE EQUIPMENT: At left, top—As 9-point kraft comes off dry end of Bagley & Sewall machine it enters a Farrel-Birmingham stack equipped with Lodding doctor, and then into Bagley & Sewall rewinding equipment. Finished roll is taken up by a Towmotor for delivery to storage or to converting mill. Center—A view of battery of Emerson jordans. Bottom—Shartle stainless steel headbox has been recently installed overhead, above Bagley & Sewall machine which it feeds. When this picture was taken outlets were not hooked up. At right, top—Dryer section of the Bagley & Sewall machine. There are 69 dryer rolls connected to Black-Clawson drives. Center—Farrel-Birmingham calender stack with Lodding doctor. Bottom—Dilts 20-ft. Hydropulper is fed by an inclined motorized conveyor.

lator and Vickery felt conditioner.

From the screens stock goes to the Cheney-Bigelow thickeners. There is a Bird Machine Co. consistency regulator. The battery of five jordans are Emersons, powered by GE motors.

A recent addition to the layout is a Shartle Bros. stainless steel head-box feeding into the cylinder machine. The machine was built by Bagley and Sewall and is a four-cylinder 142-inch design with 69 four-foot dryer rolls and Black-Clawson drives. There are two Downingtown extractors.

At the dry end is a Farrel-Birmingham calender stack with Lodding doctors followed by Bagley and Sewall winder. Strapped rolls are conveyed on the machine level to an overhead monorail which lowers them to the storage level as shown in the illustration. Instruments are from Bristol.

The power set-up at Gibraltar follows: There is a 600 hp Westinghouse turbine, a 750 kw generator and two 500 kw generators. Erie City boilers are used with bunker "C" oil. Interesting is the new type short cone stack as seen in the exterior photograph of the mill.

Paper manufacture is not new to Gibraltar, as it operated the Iroquois Paper Co. during the period of tight supply during World War II. In its initial effort at its own mill perfectly integrated with its box operations, Gibraltar has created a modern plant which has for two years been on an improvement program based on actual operations. That even further improvements are planned is evidence of the forward-looking attitude of this important segment of the U. S. boxboard industry.

ANOTHER BAGLEY & SEWALL BOARD MACHINE

This four-cylinder Bagley and Sewall Board Machine is running in the Gibraltar Corrugated Paper Company at North Bergen, New Jersey. It's making .009 board for their own converting plant. Trims 142 inches. Another Bagley and Sewall Machine that is doing a satisfactory job.

Bagley and Sewall Machines are making all kinds of paper in every section of the United States, Canada, Europe, Asia, Africa, and South America.

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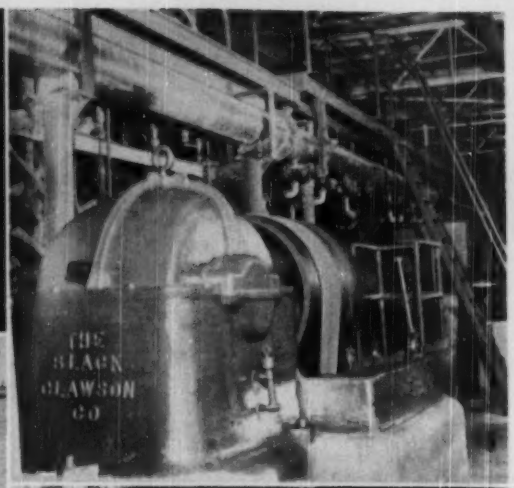

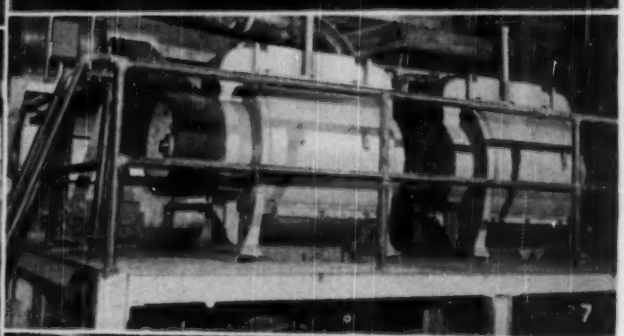

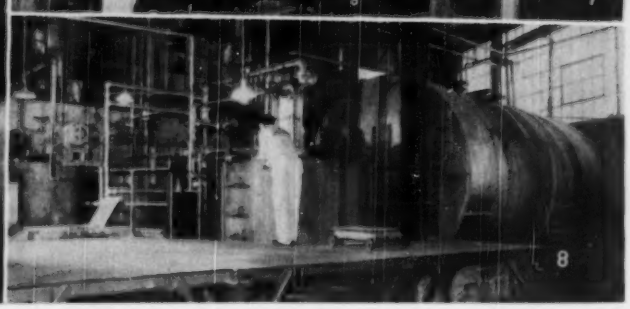

SCENES AND EQUIPMENT AT GIBRALTAR: 1—View of offices and boiler plant of the new paper mill. Note new type short, cone-stack. Construction of mill is stucco and steel. 2—Eighteen motor trucks can be handled at one time in the loading bays, of which this is one. 3—An 85-inch Samuel Langston combining machine installed in parallel with a 78½-inch combining machine. They are powered with individual Reliance drives. 4—Reliance drives which individually drive each corrugating machine in the box plant. The motor, control unit and operator's control station make up the drive. Control unit is enclosed. 5—Black-Clawson drives on the paper machine. 6—This automatic "delevator" delivers rolls to storage by ejecting them onto gravity platform. No operator is required. 7—Rotary screens with multiple-belt drives from individual G. E. motors. 8—Starch preparation is an important phase of manufacture. Here Stein-Hall service man is shown at work on equipment.

Longview Fibre Company Modernizes with C-E Recovery Unit

A new C-E Recovery Unit -- replacing three over-age units -- recently began operation at the modernized steam and electric plant of the Longview Fibre Company, Longview, Washington. The new unit is located in the space formerly occupied by two of the older recovery units. This arrangement afforded substantial savings in material and construction costs, while requiring only moderate alteration of the original building.

The C-E Recovery Unit is a specially designed 3-drum vertical pass arrangement with a 2-drum integral economizer section in the last pass. The superheater is located in the first pass of the boiler, directly above the water-cooled furnace. The Unit is designed to burn 600,000 pounds of black liquor solids per 24 hours and will produce steam at 825 psi and 750F.

The reliability, economy and operating efficiency of the C-E Recovery Unit are well known. And, as you would expect, more and more mills have selected C-E for both new installations and expansion of existing ones. 8-375

Firing level showing black liquor spray burners.

C-E

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PRODUCTS FOR THE PAPER INDUSTRY INCLUDE RECOVERY UNITS, STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; ALSO PRESSURE VESSELS

LONGVIEW FIBRE CO.'S NEW PLANT

POWER AND RECOVERY

By R. P. Wollenberg, Chief, Engineering Division, and
V. M. Sutherling, Chief Engineer,
Longview Fibre Co., Longview, Wash.

R. P. WOLLENBERG (left), is Chief of the Engineering Div., and V. M. SUTHERLING (right), Chief Engineer, for the Longview Fibre operations at Longview, Wash., where a new power and recovery plant is now in full production.

A new high pressure steam and electric plant of the Longview Fibre Co., at Longview, Wash., has now gone into full production. Principal equipment consists of a Combustion Engineering black liquor recovery furnace with a steam capacity of 100,000 pounds of steam per hour, two Babcock and Wilcox direct fired boilers, one equipped to burn hogged fuel and both equipped to burn oil each with a capacity of 230,000 pounds of steam per hour, and two General Electric turbines with a total capacity of 20,000 KVA. Steam conditions are 800 p.s.i.g. and 750°F. at the turbine throttle. Startup of the plant has permitted retirement of three old direct fired boilers and three old recovery units. It has also permitted substantial reduction of purchases of power from the Public Utility District with considerable saving in power cost.

The size and the high operating pressures of the steam and power units are unusual for a pulp and paper manufacturing plant.

The Longview Fibre Co. engineering department investigated both outdoor and indoor boiler installations. After making thorough economic analyses of the two types of construction and considering the organization's previous experience with the outdoor installation of a hog fuel fired boiler, it was concluded most economical to design the new 900-lb. direct fired boilers for outdoor installation. Because of the amount of attention required it was felt that the recovery boiler should be installed in the former recovery room where space was available after removal of some old recovery boilers.

The turbine room was enlarged to make room for installation of the new turbines where they could be operated by the usual turbine personnel.

Outdoor boiler installations have been used to an increasingly greater extent in the South where climatic conditions favor this type plant. Although not in the past used to any extent in the Northwest, the development of better insulating and weather-proofing materials indicates that this type installation can be expected to receive greater acceptance.

The mill in 1947, was equipped with two 175-lb., 50,000-lb./hr. oil fired boilers, one 175-lb., 35,000-lb./hr. bark fired boiler, two 175-lb., 30,000-lb./hr. Wagner recovery boilers, one 175-lb., 50,000-lb./hr. Tomlinson recovery boiler, one 400-lb., 45,000-lb./hr. Tomlinson and one 400-lb., 55,000-lb./hr. Tomlinson. Total recovery capacity was 320 tons/day in Tomlinsons plus about 60 tons/day of standby Wagner capacity. Average steam generation was 230,000 lb./hr. In addition, an average of 200,000-lb./hr. was purchased from a nearby plant of the local Public Utility District through a 6000' long 14" diameter pipe line. The generating equipment consisted of one 175-lb. throttle 40-lb. extraction condensing turbine of 3125 KVA capacity, one 175-lb. throttle 40-lb. back pressure turbine, 2000 KVA, and one 400-lb. throttle 40-lb. back pressure turbine, 5000 KVA.

Early in 1947 a decision was reached

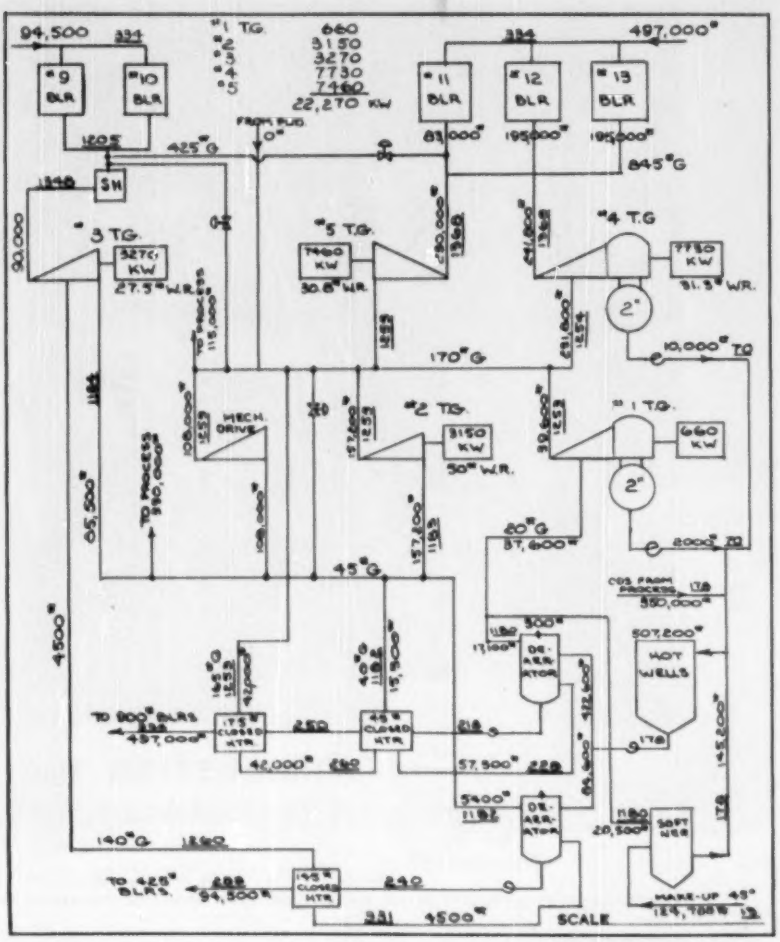
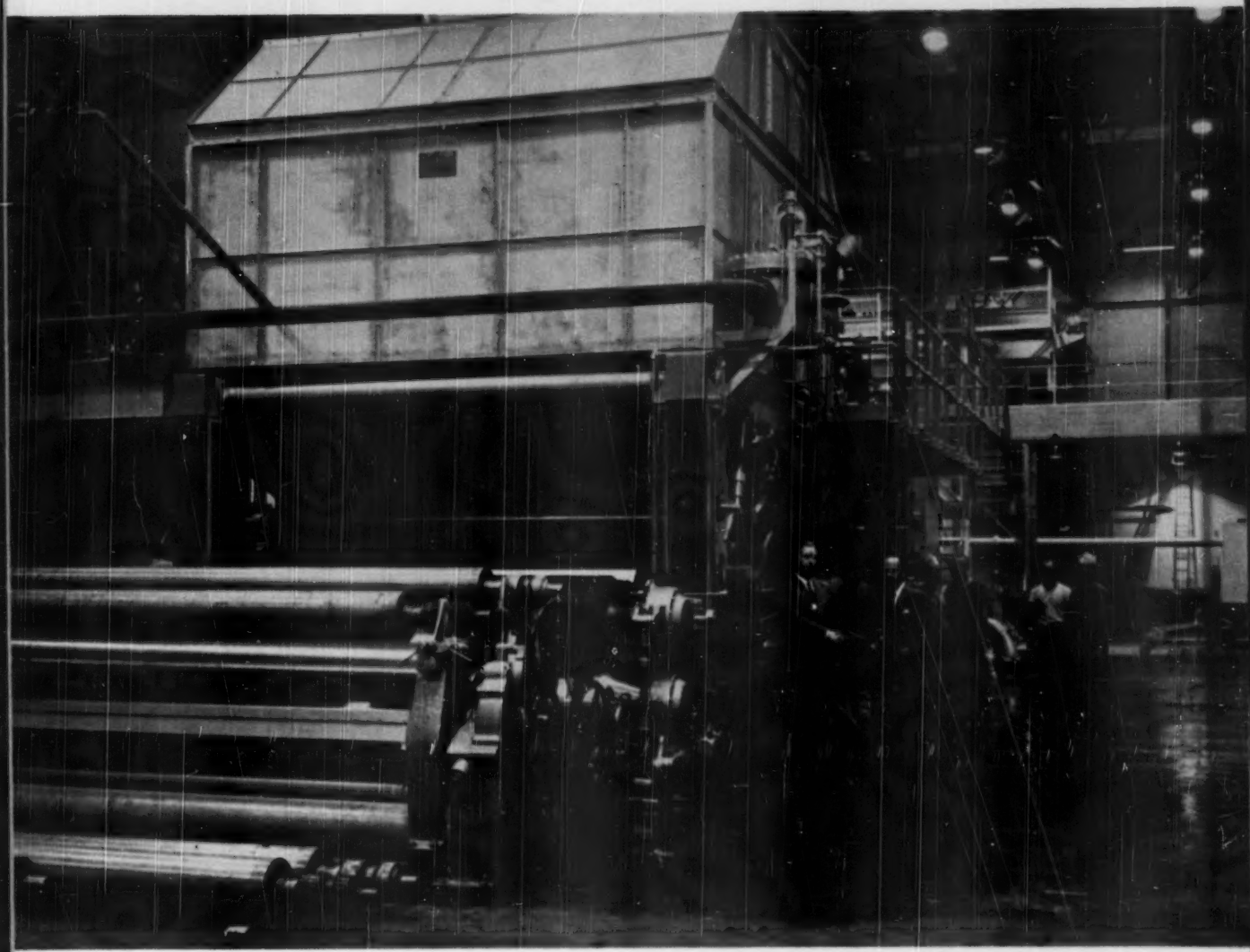


FIGURE 1—POWER PLANT HEAT BALANCE AT LONGVIEW FIBRE CO.

Diamond Match: tissue and waxing



In the Plattsburg, N. Y., mill of the Diamond Match Company, Mr. J. O. Julson, General Manager of the Pulp & Paper Division, and Mr. B. O. Preu, Vice President, climaxed the company's recent expansion program with the start-up of "The Silver Streak," a fast, modern Beloit Yankee machine. In the background is one of the machine crews. The third Beloit machine to be built for this mill, "The Silver Streak," under the expert handling of these men, is achieving notable speeds and maintaining Diamond's high standards of quality.—*Beloit Iron Works, Beloit, Wisconsin.*

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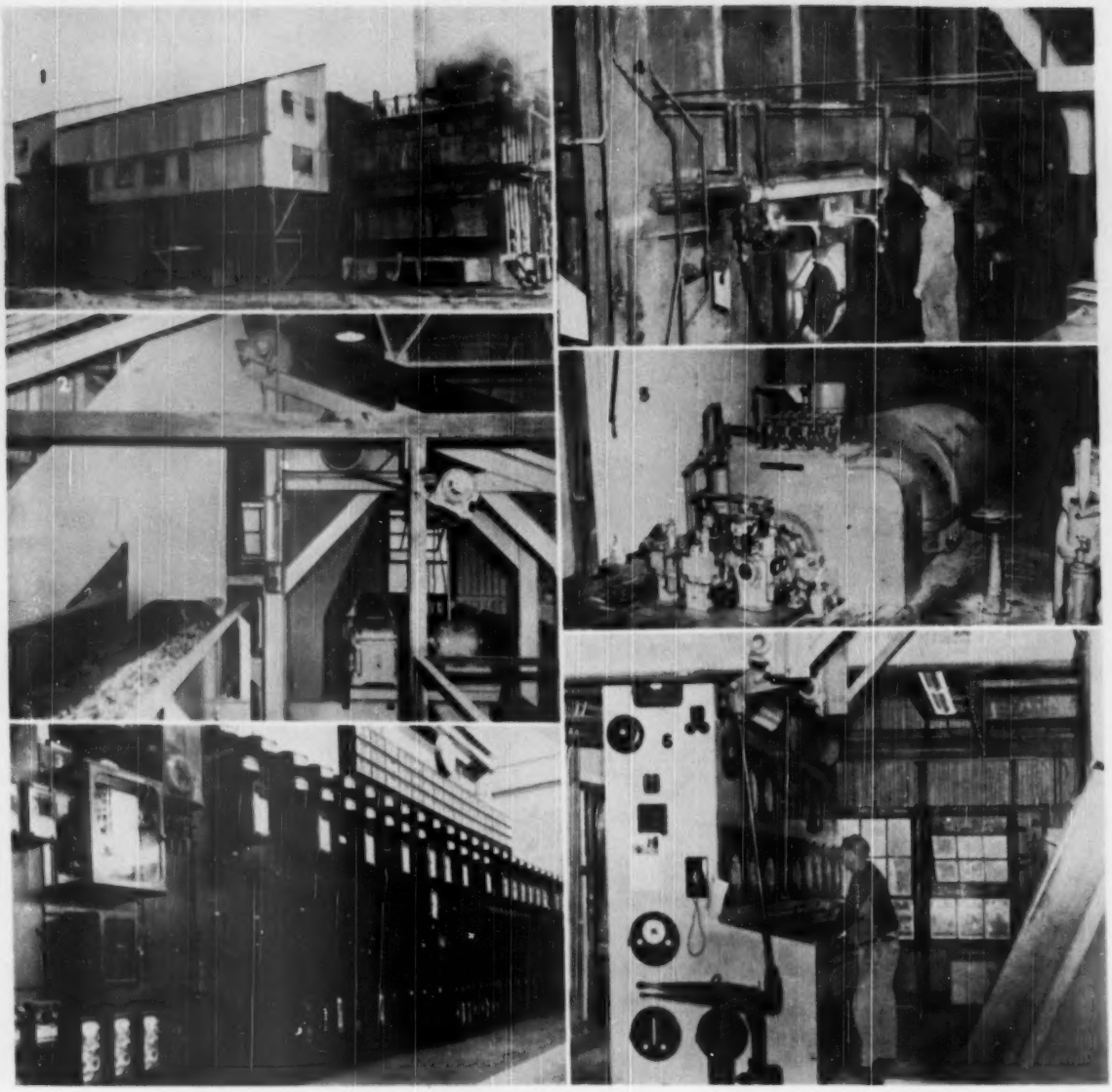

EQUIPMENT AT LONGVIEW FIBRE CO: 1—No. 12 boiler and dutch ovens, with building over firing platform and lower platform for cleaning grates, at left. This unit burns both hog fuel and fuel oil. At right is No. 13 oil-burning boiler arranged so dutch ovens can be added, both boilers are Babcock & Wilcox 900-lb. F-type integral furnaces. 2—Link-Belt conveyor system with 24-inch U. S. Rubber belt (also furnished by Link-Belt) at right bringing hogged fuel from storage pile and woodroom to discharge into 36-inch wood flight distributing conveyor (at lower left over 4 dutch ovens of No. 12 boiler). Bypass at left is for discharging woodroom fuel to storage pile when boiler is down. 3—Main electrical switch panel in generating room for five turbo-generators and mill distribution system. At top of panel is new annunciator installed to indicate to turbine operator need of attention to any particular piece of equipment.

4—Combustion Engineering-Superheater, Inc., black liquor recovery boiler at operating floor of No. 11 recovery furnace with two of four oscillating liquor nozzels for spraying concentrated black liquor into furnace. At right background D. J. Murray evaporator which uses furnace exit gasses to further concentrate black liquor before it is burned in recovery furnace. This equipment was furnished by Combustion Engineering-Superheater, Inc., and installed by R. L. Johnson Corp., San Francisco. 5—No. 4 turbo-generator in generating room. This is a G. E. 10,000-kw., 800-lb., 750° F. T.T. (Total temperature) throttle, 175-lb. extraction and condensing. This is one of 5 G. E. generators. 6—Control panel for No. 12 and No. 13 boilers.

to retire existing 175-lb. boilers which were some 20 years old and relatively poor in efficiency. This action was made necessary by increases in the cost of purchased power and steam and by the obsolescence of the older recovery equipment in use. At that time, it was decided to build sufficient facilities so that the mill could run self-contained. This would put the mill in a strategic position to buy or make power and steam, whichever was more economical. Some future growth was also to be provided for.

At that time services of an experienced consulting engineer, R. C. Powell of San Francisco, Calif., were obtained. A heat balance was prepared by the authors and consideration was given to selection of the proper steam conditions. It was first decided that 750° F. total temperature was the highest practicable in a recovery unit as higher temperatures would result in subliming of the chemical ash on the tubes. With this limitation it was found that a pressure of 800 pounds at the turbine throttle would produce sufficient power from process steam, when running self-contained, to make the production of power by condensing unnecessary under most conditions.

After consideration of both heat balance and process needs the following equip-

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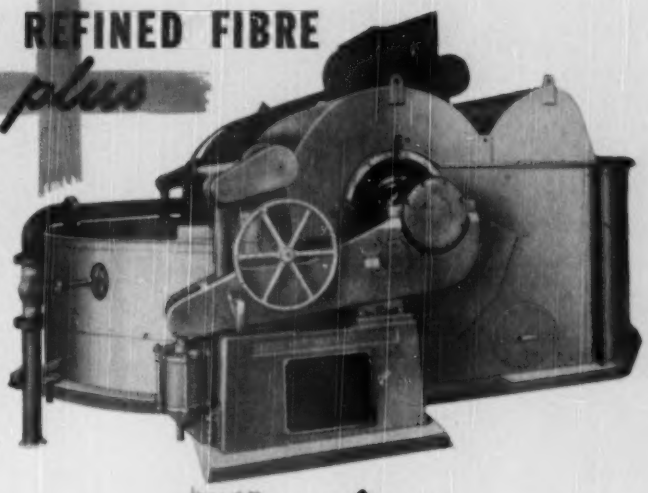

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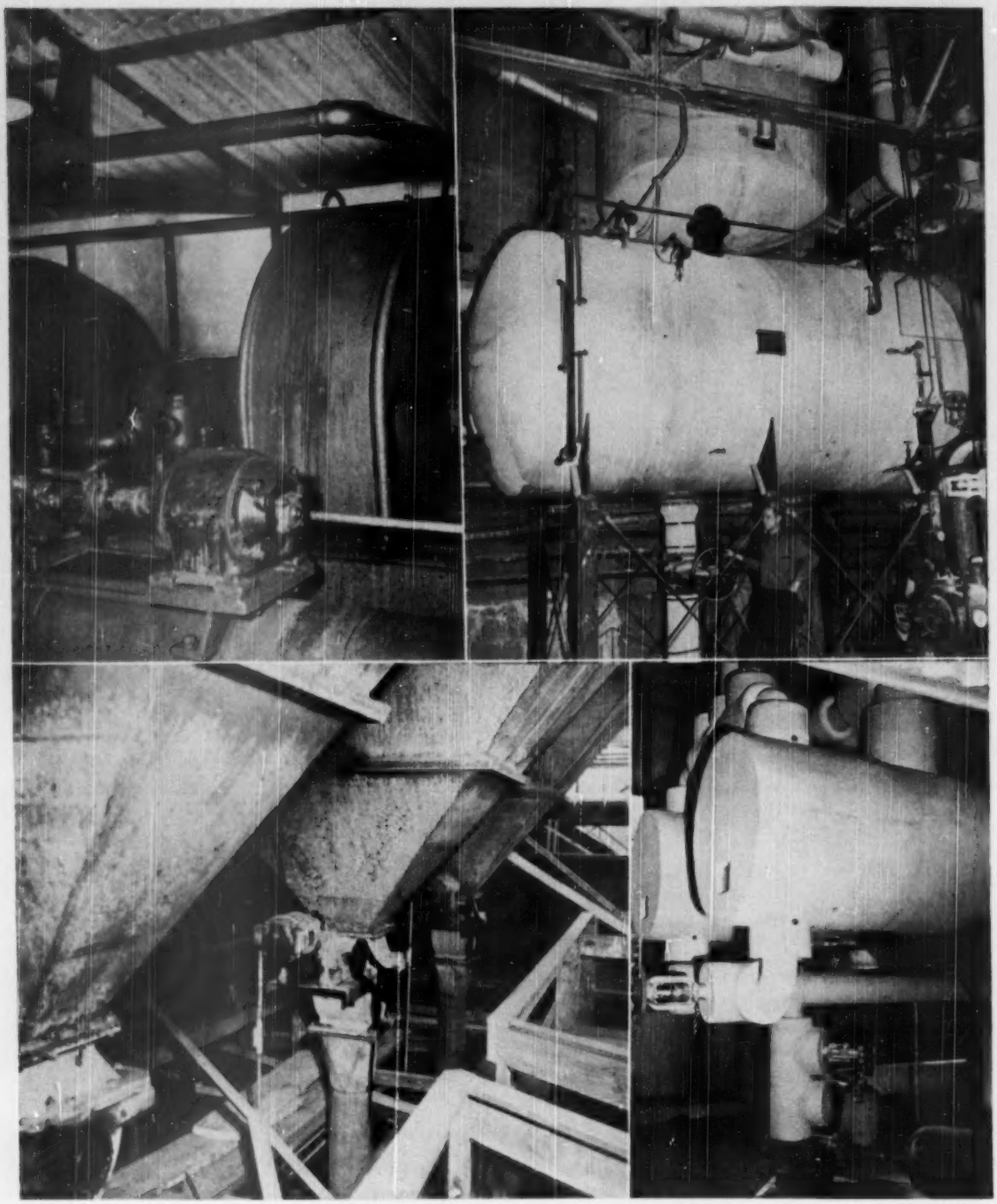
ment was selected:

1—900-lb. design pressure, 750° total temperature recovery boiler capacity, 100,000-lb./hr. of steam and 170 tons/day of chemical pulp liquor recovery.

1—900-lb. design pressure, 750° total temperature direct fired boiler, 230,000-lb./hr. equipped for firing with oil and/or hogged fuel.

1—900-lb. design pressure, 750° total temperature oiled fired boiler, 230,000 lb./hr. capacity.



LONGVIEW FIBRE CO. EQUIPMENT: Top, left—G. E. 300 h.p. motor is connected to American Blower hydraulic coupling which drives induced draft fan. Hydraulic coupling is a variable speed unit for maintaining desired draft, in recovery furnace, by means of a Leeds & Northrup controller. Top, right—Cochrane deaerator of 500,000-lb. per hour which, operating at 20 p.s.i. steam pressure, deaerates all feed water for 900-lb. boilers. Virgil Sutherling, Chief Engineer, is standing beside discharge valve. Lower, left—Three cinder valves of Western Precipitation Corp. multiclones of cinders. (Multiclone, under vacuum produced by induced draft fan, separates fly ash from flue gasses.) Lower, right—Fuel oil pump house, showing two C. G. Braun & Co. fuel oil heaters at top, and one of three DeLaval-Imo service pumps (on floor) for pumping oil from storage tanks to boilers and recovery dept. National Airoil Burner Co. duplex basket pump suction strainers are in line ahead of each Imo pump.

1—12,500 KVA automatic extraction condensing turbine throttle conditions 800-lb., 750° F., extraction at 175 lbs.

1—7,500 KVA 800-lb., 750° F. to 175-lb. back pressure turbine.

In addition a new steam end was purchased for the 175-lb.-40-lb. turbine to increase it to 3125 KVA inasmuch as the generator could be rewound to that capacity.

Heat Balance

Fig. 1 shows the heat balance for self contained operation of steam generating facilities. An allowance of 10 % growth of steam and power consumption is provided and no outside source of power or steam will be required. At the top of the drawing, No. 11 is the new Combustion Recovery Unit and Nos. 12 and 13 indicate the Babcock and Wilcox direct fired boilers. Nos. 9 and 10 are the 400 pound Tomlinson recovery units. No. 1 and 2 turbine generators are the old 175-lb. throttle turbo-generators and No. 3 turbine generator is the 400-lb. throttle machine. Nos. 4 and 5 are the two new General Electric turbo-generators of 12,500 KVA and 7,500 KVA.

Buildings

To facilitate operation and reduce length of pipe runs and gas ducts the new recovery unit erected by R. L. Johnson Corp. was located in the present Recovery Room in an area formerly occupied by two Wagner furnaces. It was necessary to enlarge the space by reinforcing the structural steel building columns and raising the roof 50 ft. Also, balconies were built out over an existing railroad track at five of the six floors to provide space for the D. J. Murray Co. Cascade evaporators, salt cake mixing tank, induced draft fan and lancing. All construction is of reinforced concrete and steel, and general construction was done by Roy T. Earley Co.

The two direct-fired boilers erected by C. C. Moore & Co. are of the outdoor type in which the only enclosure is a steel and transite building over dutch oven firing deck and control panel operating platform. A lean-to from this building provides shelter for the oil burner operating platform which is located between the two boilers and one deck below the main operating platform.

Additional space was added to the present turbine room to permit installation of the two new turbo-generators, air compressors and feed-water equipment. This space was formerly occupied by dry chemical storage tanks which were moved to outdoor installations.

Steam Generating Units

The Combustion Engineering recovery boiler is of their standard 3-drum vertical pass type and also has a 2-drum economizer section with automatic control of gas volume to provide regulated exit temperature. There is a pendant type superheater located in the first pass above the water cooled furnace and a steam air heater for preheated combustion air. Forced draft fan runs at constant speed with volume control by means of a multivane discharge damper. Induced draft fan gas volume is varied by means of a hydraulic drive coupling which is regulated automatically to maintain set furnace draft.

Direct-fired boilers are Babcock and Wilcox two-drum "F" type with horizontal gas passes and completely water cooled furnaces. They were built opposite hand so as to bring operating stations together between boilers. Both boilers have foundations designed so as to permit raising boilers and installation of ash hoppers for coal burning.

No. 12 Boiler has four Y-jet wide range steam atomizing oil burners and four flat grate dutch oven extension furnaces built by C. C. Moore & Co. for burning hogged fuel. Dutch ovens are 9 ft. wide by 10 ft. long by 8 ft. deep and are equipped with Economy tubular steel water cooled grates. Fly ash is collected by a 54 tube Western Precipitation Corp. Multiclone cinder collector located between boiler and air heater. The fly ash is returned to dutch ovens by a fan using flue gas for the conveying medium. The vertical tube air heater has one gas and three air passes. Forced and induced draft fans are of the constant speed type but each have two G. E. drive motors of different speeds so that speed can be reduced at light loads so as to save power and improve regulation. Fan volume control is by means of inlet vane dampers. Superheater is of the hairpin type and is located in the first pass. Because of the variation in superheat when firing hogged fuel, this boiler has a submerged type attemperator located in the mud drum.

No. 13 Boiler is identical to No. 12 Boiler except that it is of opposite hand. Since it is equipped to burn oil alone, no Multiclone cinder collector or attemperator are provided. Provision has been made for conversion to hogged fuel.

Soot Blowing

High pressure air soot blowing equipment supplied by Diamond Power Specialty Corp. is used for cleaning the boilers, superheaters, economizer and gas air heaters on all high pressure boilers. Compressed air is furnished by two, 2 stage reciprocating Ingersoll-Rand compressors rated at 324 c.f.m. of free air. Compressors are located in the turbine room with receivers located at recovery and direct fired boilers. These receivers are large enough to provide storage so as to prevent system draw down during operation of the air puff type soot blowers.

Boiler Feed

As indicated in the heat balance diagram, condensate from the mill is returned to atmospheric hot wells having a capacity of 50,000 gallons. Any required makeup is also added to these hot wells from the Permutit hot process softener which has a capacity of 150,000 pounds per hour. Three pumps of which two are electric and one a DeLaval steam turbine

SOME INTERESTING FEATURES AT Longview Power Plant

By Richard Powell
Consulting Engineer,
Bechtel Corp., San Francisco

There are several features of particular interest in connection with the recent additions to the power plant capacity at the Longview Fibre Co.'s mill.

The pressure is somewhat higher than usually employed for turbines of the size selected. Studies for both 600 and 800 psig. showed an advantage for the higher pressure as a result of the better utilization of the waste fuels available in comparison with the cost for more expensive purchased fuels.

Very frequently an industrial power plant is located so that future expansion of either or both the power plant or other plant facilities is difficult or impossible. The Longview Fibre management decided to avoid this and it is to be noted that the location of the power boilers is such as to permit future additions to the power plant capacity to be made without interference with the mill operation or expansion.

The decision of the management to locate the two boilers outdoors is in line not only with well-established utility and oil refinery practice in California and other mild climate locations, but also becoming common for climates more severe than that at Longview.

Another interesting feature is the control devised and put into operation by the Longview engineers prior to the recent additions. This control successively selects the most economical power source for any given load requirement, these sources being power from process steam, the steam being generated either from waste or purchased fuels, purchased power, or power from steam to the condenser.

The power set-up is somewhat complicated due to the number of sources each with a different cost, all of which made necessary a careful consideration of such matters as steam pressure, size and type of turbines, and capacity for condensing operation. The installation permits great flexibility in operation.

The management of the company and its engineering staff deserve credit for the very efficient manner in which the engineering and construction of this project was carried out.

driven standby, pump the feedwater to a Cochrane Corp. open type deaerating heater having a capacity of 500,000 pounds per hour. It is supplied with 20 pounds steam from the extraction opening on No. 1 turbine. Condensate from heat exchangers and traps, that is so hot that it would flash in atmospheric hot wells, is discharged into this deaerator.

Booster pumps on the same shafts as the main feedwater pumps handle the feedwater from deaerator and force it through two stages of C. E. Braun & Co. closed heaters operating at 40 and 170 p.s.i.g. steam pressure. From the closed heaters the feedwater passes through the main feed pumps to the boilers. There are three of these pumps, two being driven by Westinghouse 800 H.P. motors and the third by a 730 H.P. Terry steam turbine with 170 lb. inlet and 45 lb. back pressure.

Piping

The two 12-inch main steam lines and 6-inch feedwater from direct fired boilers to distribution header at turbine room are each 500 ft. long. They are all welded construction including valves and fittings and all joints were stress relieved. Recovery boiler 8 in. main steam and 4 in. feedwater line is 150 ft. long and of the same construction.

Fuel Handling Equipment

An outside storage pile capable of storing 20,000 units of hogged fuel is provided. Two sides of this pile are retained by a 24 ft. high bulkhead of pile and timber construction. Fuel which is brought in by truck is spread on pile with a diesel tractor which also pushes fuel to the 30 inch wide by 400 ft. long 45° idler belt reclaiming conveyor running along one side of fuel pile. Rate of feed into reclaiming conveyor is regulated by placing of duckboards across top of conveyor. A 24 inch wide by 150 ft. long inclined belt conveyor takes the hogged fuel from reclaiming conveyor to the distributing conveyor above dutch ovens. This conveyor is a 36 inch wide, 60 ft. long wood flight conveyor with provision so that excess fuel not used in dutch ovens will carry over and be returned to fuel pile. There is also a 20 inch wide by 850 ft. long belt conveyor for fuel from chip preparation plant to inclined conveyor. Conveyors were supplied by Link-Belt Co.

A 10,700 bbl. service tank for Bunker "C" fuel oil is located near the direct fired boilers. Oil is brought to the mill in tank cars from an 80,000 bbl. company owned storage tank at the Port of Longview. Six tank cars can be heated and unloaded simultaneously at the new unloading spur which also includes a 40 H.P. transfer pump for filling the service tank. Located at the base of the service tank is the oil pump building which houses the three 20 H.P. service pumps and two oil heaters as well as level, pressure and temperature controls for the fuel oil system. Steam at 40 pounds pressure is used for heating the fuel oil. Capacity of this new oil handling system is sufficient to supply all fuel oil usages at the mill including that used by the lime kiln.

PRINCIPAL EQUIPMENT

Turbine-Generators and Auxiliaries

1—Turbo-generator: Steam turbine, rating 6000 KW, 13 stages, 3600 RPM, 800 lb. G, 750° F.T.T., 175 lb. G back pressure. A-C generator rating 7500 KVA, O. 8 P.P., 13,800 volts—General Electric.

1—Turbo-generator: Steam turbine, rating 10,000 KW, 14 stages, 3600 RPM, 900 lb. G, 750° F.T.T., 3" Hg. bar lift 175-lb. G extraction—6th stage shell. A-C generator rating 12,500 KVA, O.8 P.F., 13,800 volts—General Electric.

1—5,000 sq. ft. condenser for above turbine rated 115,000 lbs. per hour, 9200 g.p.m. of 68° F. cooling water, 3.11 in. Hg. absolute pressure—Westinghouse.

1—Turbine: 2500 KW, 3600 RPM, 170-lb. G, 475° F.T.T., 45-lb. G back pressure—Worthington Pump & Mchy.

Steam Generating Units and Auxiliaries

1—Black liquor recovery unit rated at 600,000 lbs. dry solids per 24 hrs., 900 p.s.i.g. maximum design pressure, 750° F. maximum design temperature, 17'1" furnace width, 21,650 sq. ft. total heating surface, average steam flow 100,000 pounds per hour when fed with 53% solids black liquor and feedwater at 366° F.—Combustion Engineering Superheater Inc.

2—Cascade evaporators—D. J. Murray Co.

2—Direct fired boilers rated at 200,000 lbs. per hr. continuous steam flow and 230,000 lbs. per flow for two hour peak, 920 p.s.i.g. design pressure, 840 p.s.i.g. operating pressure, 750° F.T.T., 366° F. feedwater temp., 17,751 sq. ft. total heating surface, 9590 cu. ft. furnace volume—Babcock and Wilcox.

4—Dutch oven cells 9 ft. wide, 10 ft. long and 8 ft. deep with Economy water cooled grates—C. C. Moore & Co.

2—Tubular air heaters, 29,400 sq. ft. one gas pass, three air passes—Babcock and Wilcox.

1—Steam air heater, 40,000 c.f.m., 300° F. preheat—Young Radiator Co.

1—Fly Ash cinder collector, 54 tube 24 VD Multiclone—Western Precipitation Corp.

8—Steam mechanical oil burners, 24-1/2" hinged type access cover, Y-jet—Babcock and Wilcox.

1—Forced draft fan, 50,000 c.f.m., 10" S.P., 1150 RPM, 111 H.P., and 1 Induced draft fan, 90,000 c.f.m., 10" S.P., 850 RPM, 272 H.P.—American Blower Co.

2—Forced draft fans, 87,000 c.f.m., 12" S.P., 1180 RPM, 222 H.P., 105° F. No. 105 Turbovane, design 9. DWDI, and 2 induced draft fans, 200,000 c.f.m., 7½" S.P., 875 RPM, 755 H.P., 485° F., No. 1009 Steel Plate, design 3 TVID, DWDI—Westinghouse-Sturtevant.

Soot Blowing Equipment

38 Soot blowers—(30) rotating valve in head, 2" size, Model A2E; (2) straight line steel; and (6) retractable, type IK, steam cleaning all air-operated—Diamond Power Specialty Corp.

2—Air compressors, 2 stage, 324 c.f.m. free air capacity, 350 lb. discharge pressure—Ingersoll-Rand Co.

Fuel Handling Equipment

4—Hog fuel conveyors, all with 45° idlers; (1) 20" wide, 850 ft. long; (1) 20" wide, 300 ft. long; (1) 30" wide, 400 ft. long; and (1) 24" wide, 150 ft. long—Link-Belt Co.

1—Hog fuel wood flight conveyor, 36" wide, 60 ft. long—Link-Belt Co.

1—Fuel oil tank, 10,740 bbl. capacity—American Pipe and Construction Co.

Pumps

3—Hot wells, capacity 1100 g.p.m., 140 ft. hd., 51.5 H.P., Model 4-L-1, double suction, 3500 RPM—Worthington Pump & Mchy.

3—Main feed and booster sets, capacity 400,000 lb./hr., 3550 RPM, main pump 1985 ft. T.D.H., booster pump 685 ft. T.D.H., main pump 535 H.P., booster pump 185 H.P., Size 6-UX-1, 4-UB-2—Worthington Pump & Mchy.

1—Fuel oil transfer, capacity 400 g.p.m., 10,000—12,000 S.S.U. No. 6 fuel oil, 114 lbs./sq. inch T.D.H., 350 RPM, 40 H.P., Model A-32N—Imo-DeLaval Steam Turbine Co.

3—Fuel oil service, capacity 40 g.p.m., 200-12,000 S.S.U. No. 6 fuel oil, 350 lbs./sq. inch T.D.H., 1150 RPM, 20 H.P., Model A-32P—Imo-DeLaval Steam Turbine Co.

3—Black liquor 150 g.p.m., 70 F.T. hd.—Worthington Pump & Mchy.

Drives

2—Hot well pump motors, 50 H.P., 3600 RPM, constant speed, 3 ph. 60 cycle, 440 volts—General Electric.

1—Hot well pump turbine—55 H.P., 3500 RPM, 165-lb. inlet steam pressure, 5-lb. back pressure—Worthington Pump & Mchy.

2—Main feedwater pump motors—800 H.P., 3600 RPM, constant speed, 3 ph., 60 cycle, 440 volts—Westinghouse Electric Corp.

1—Main feedwater pump turbine—730 H.P., 3550 RPM, 170-lb. inlet steam pressure, 45-lb. back pressure, oil relay governor—Terry Steam Turbine Co.

2—Air compressor motors—125 H.P., 900 RPM; (1) Forced draft fan motor 125 H.P., 1200 RPM; (1) Induced draft fan motor—300 H.P., 900 RPM; (2) Forced draft fan motors, 40 H.P., 720 RPM; (1) Forced draft fan motor, 200 H.P., 1200 RPM—all constant speed, 3 ph., 60 cycle, 440 volts—General Electric Co.

2—Induced draft fan motors, 200 H.P., 600 RPM; and (1) Induced draft fan motor, 700 H.P., 900 RPM—all constant speed, 3 ph., 60 cycle, 2300 volts—General Electric Co.

Instruments and Controls

Recovery boiler—Bailey Meter, Leeds and Northrup, Taylor, Cochrane Corp., Diamond Power Specialty and Reliance Gage Co.

Direct fired boilers—Diamond Power Specialty, Reliance Gage and Bailey.

Steam, water, oil flow and desuperheating—Bailey Meter; Feedwater Fischer-Governor Co.; Fuel oil temperature—Taylor; Oil pressure—A. W. Cash; Reducing station—Republic Flow Meter.

Heaters

1—Deaerating feedwater—500,000 lbs. per hr. capacity, 0-50 p.s.i.g. operating pressure—Cochrane Corp.

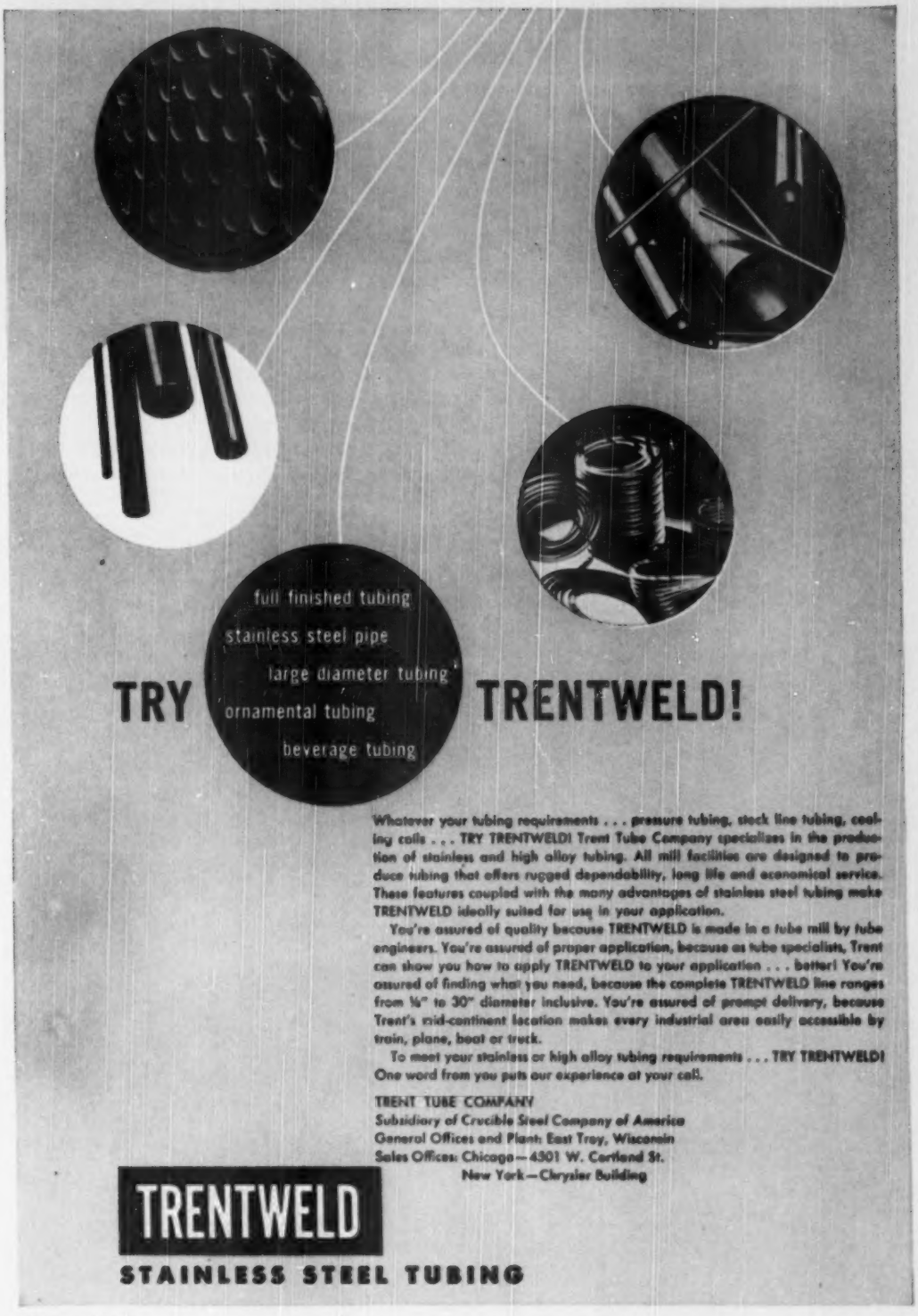
1—Closed feedwater—165 p.s.i.g. operating pressure, capacity 500,000 lbs./hr. water from 282 to 366° F., 3100 sq. ft., Size 34-192; (1) Closed feedwater—45 p.s.i.g. operating pressure, capacity 500,000 lbs./hr. water from 250 to 282° F., 2320 sq. ft., Size 30-192; and (2) Fuel oil—30 p.s.i.g. operating pressure, capacity 40,000 lbs./hr. oil from 80 to 220° F., 1220 sq. ft., Size 24-192—all Type ET, Horizontal—C. F. Braun & Co.

Piping

Main steam and feedwater—Midwest Piping and Supply Co.; Direct fired boilers, Bay Co.; Recovery boilers—Longview Plumbing and Heating Co.; Turbine room—Amadon Forge and Machine Works.

Valves

High pressure gate, globe and check—Lunkenheimer, Edwards-Hancock;



Whatever your tubing requirements . . . pressure tubing, stock line tubing, cooling coils . . . TRY TRENTWELD! Trent Tube Company specializes in the production of stainless and high alloy tubing. All mill facilities are designed to produce tubing that offers rugged dependability, long life and economical service. These features coupled with the many advantages of stainless steel tubing make TRENTWELD ideally suited for use in your application.

You're assured of quality because TRENTWELD is made in a tube mill by tube engineers. You're assured of proper application, because as tube specialists, Trent can show you how to apply TRENTWELD to your application . . . better! You're assured of finding what you need, because the complete TRENTWELD line ranges from ⅛" to 30" diameter inclusive. You're assured of prompt delivery, because Trent's mid-continent location makes every industrial area easily accessible by train, plane, boat or truck.

To meet your stainless or high alloy tubing requirements . . . TRY TRENTWELD! One word from you puts our experience at your call.

TRENT TUBE COMPANY
Subsidiary of Crucible Steel Company of America
General Offices and Plant: East Troy, Wisconsin
Sales Offices: Chicago—4301 W. Cortland St.
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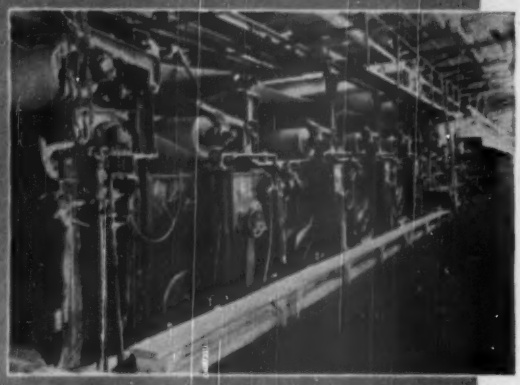
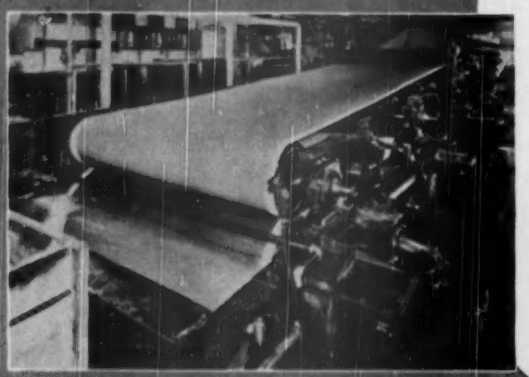
TRENTWELD

STAINLESS STEEL TUBING

Here are just a few of the numerous Stream-Flow Vat installations in operation producing a wide range of products—highest grade papers, boards and felt. New installations are coming into use constantly.



Original installation of Stream-Flow Vat System. Started up January 1940 on tags and other high-grade boards.



Closeup of smooth inlet flow produced by Flow Spreaders in basement—another early installation, on high grade light weight cylinder papers.

Highlights of 10 Years of Progress in Stream-Flow Wet Ends

Ten years ago this month, the first Goldsmith Stream-Flow Vat System went into operation. This milestone in the history of Puseyjones Cylinder Machines was followed by three more start-ups in that first year.

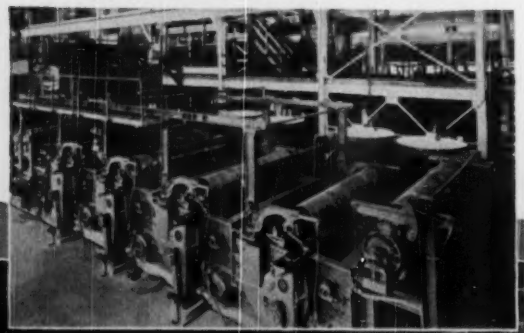
For ten years, each new Stream-Flow Wet End has reflected changes and improvements in design and construction. Formation has been constantly improved . . . speeds of production have increased. Latest improvements, like the vacuum cylinder mold, are standard but optional. Several important new installations are starting up or are under construction.

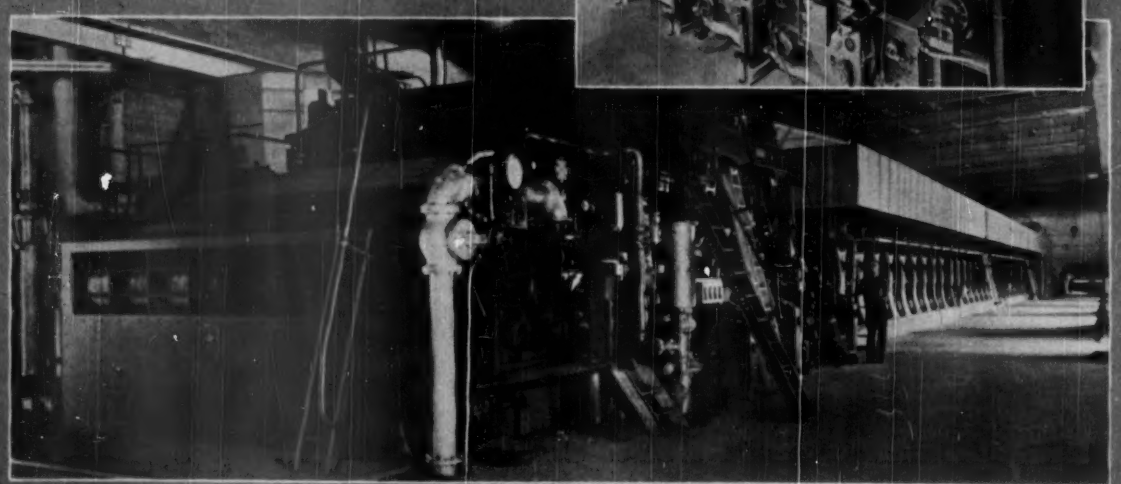
Mill change-overs are often accomplished in several steps—the proof of performance is in the operation. If you are planning any changes or additions in Cylinder Machines, talk to our engineers—see what Stream-Flow Vat Systems would do for *your* quality and production speed.

THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-Making Machinery
Wilmington 99, Delaware, U.S.A.

THE SIGN OF 100 YEARS MAKES SUPERIOR QUALITY

First Stream-Flow Cylinder Wet End in the South making high grade boards. A repeat order from an earlier customer.





One of three Stream-Flow roofing installations, this one on the most modern felt machine ever built. Making floor felt.

low pressure gate, globe and check—Manning Maxwell and Moore, Crane; regulating—Bailey, Fischer-Governor, Smoot, Taylor, A. W. Cash, Leslie, Swartwout Co.; boiler blowdown—Yarway Co.

Electrical

Direct fired boilers and turbine room wiring—Krivaneck Electric Co.; and recovery boiler wiring—Tide Co.

1—Transformer—1000 KVA, 13,200-440 volt, 3 phase, 60 cycle—General Electric.

3—Transformers—400 KVA, 13,200-2300 volt, 1 phase, 60 cycle—Westinghouse.

Metal clad switchgear—13,800 volt, 2300 volt, 440 volt—General Electric.

Miscellaneous

Foundations and miscellaneous construction—Roy T. Earley Co.; direct fired boilers erection—C. C. Moore & Co.; recovery boiler erection—R. L. Johnson Corp.; insulation contractors—E. J. Bartells Co.-Asbestos Supply Co.; turbine room 15 ton crane—Manning Maxwell and Moore Co.; hot process softener—Permutit Co.; concrete stack—12 ft. x 100 ft. Rust Engineering; breeching—American Pipe and Construction Co.

A Senator in Sweden

MAGNUSON DISCUSSES PULP MARKETS

Back from a trip to Sweden, Norway and other European centers, U. S. Senator Warren Magnuson (Dem., Wash.) widely regarded as one of the most influential leaders in the government, told **PULP & PAPER** in an interview that the Swedish pulp industry was working to get idle mills back into production and were aiming their sales efforts almost exclusively toward the United States markets.

He said he talked with a number of Swedish pulp industry leaders and with a government official whose position corresponded to that of an undersecretary of state in this country and to the ECA representative in Sweden, and they all indicated strongly that it was the desire of the Swedish industry to sell pulp almost exclusively in the U. S. market and to the exclusion especially of those other countries where there are depreciated currencies.

"I hope and believe that my talks with them may have influenced them to try to work out a profitable trade in other countries and to be reasonable in their selling to the U. S.," he said. "I told them that we can't stand any dumping in this country and I don't think that Congress would stand for it. It would be different if this was the only place they could sell, but they have the whole world outside of the U. S. for a potential market.

"When I arrived they were laying plans especially for the U. S. They regard their timber holdings as in good shape as the result of strict government control and sustained yield growth. They were planning to increase pulp output."

Sen. Magnuson said business is presently generally very good in Sweden. They "get gold on the barrelhead for sales to Russia," he said. He found that considerable Finnish pulp was being sold through Swedish brokers.

"But they have not tried to develop any sustained trade relations in any of the depreciated currency countries," he said. "If a good barter comes along, they will take it. But these are isolated barter deals and they don't want the money from those countries or a regular trade. All their promotion is to sell pulp in the U.S."

The senator said he urged the Swedish leaders to "get their currency situation straightened out" and to work with these other nations.

He said he saw no effective protection for the United States paper industry from dumping from abroad as a result of the combination of recent tariff cuts of up to 50% on some paper lines plus devaluation.

He said the reciprocal trade agreements as mapped out now are "too rigid and for too long periods" and that protection under their provisions is insufficient for the U. S. paper industry because "the damage is done before any action can be taken."

Senator Magnuson said the proposed Brannan administration plan for agriculture and the Columbia Valley Administration proposal, both measures coming before the new session of Congress, "are not intended to give any more governmental authority over the growing and harvesting and use of trees on private timberlands than obtains under existing laws."

"If there is any danger that they would extend any of these controls, these bills should be written in clear language so that there are no more powers granted than now exist in the Forest Service regulations or other existing laws," he said.

Several private forest industry associations have taken strong positions against the Brannan proposals and the CVA. It has been contended that under them, the government itself could conduct logging on private lands and even build and operate a government pulp mill or other wood-use industry.

Swedes Change from Rayon To Paper for U. S. Market

The U. S. Department of Commerce reports that some mills in Sweden are converting substantial tonnages of rayon pulp capacity to the manufacture of paper grades primarily for the U. S. market.

The department reports both Swedish and Finnish industry spokesmen voice their intention to continue efforts to recover larger shares of the U. S. market, despite increasing sales outlets in Europe.

Pulp Freight Reduced in Sweden

Foreign Commerce Weekly of January 2, 1950, states that State-owned Swedish Railways announce substantial freight-rate reductions up to 50% to facilitate pulp shipments. As a result, the industry is planning to increase winter exports by using railway transportation from North Sweden to ice-free harbors. Previously, winter exports had been comparatively low because water transport from mills was icebound.

Pulp Importers Elect

Stanford G. Blankinship has been elected president of the Association of American Wood Pulp Importers at a meeting recently at Sherry's in New York. Mr. Blankinship is vice-president of Perkins-Goodwin Co., 30 Rockefeller Plaza, and prominent in the industry. Other officers for 1950 are Robert T. Burke, vice-president; Richard F. Kist, secretary; V. Ramsay, treasurer; and James Donaldson, director.

New Rayon Pulp Mill

The Swedish Timber and Wood Pulp Journal states that German press reports indicate the construction of a rayon pulp mill in Magdeburg-Rothense in the Russian Zone of Germany. The mill is planned for a 60,000-ton annual production, and would be ready to start up in 1951.

Here's How Strathmore Works for Better Quality

A total of over $600,000 was spent in 1949 on plant improvements and maintenance at Strathmore Paper Co.'s Massachusetts mills, according to George E. Williamson, president.

Recently a much enlarged program of statistical quality control has been put into effect, with the employment of a highly qualified consultant. Prizes of $50 and $100 U. S. Savings Bonds are being offered Strathmore employes for the best slogans and essays relating to quality, and a thorough-going educational plan to improve quality, even above present standards, is under way.

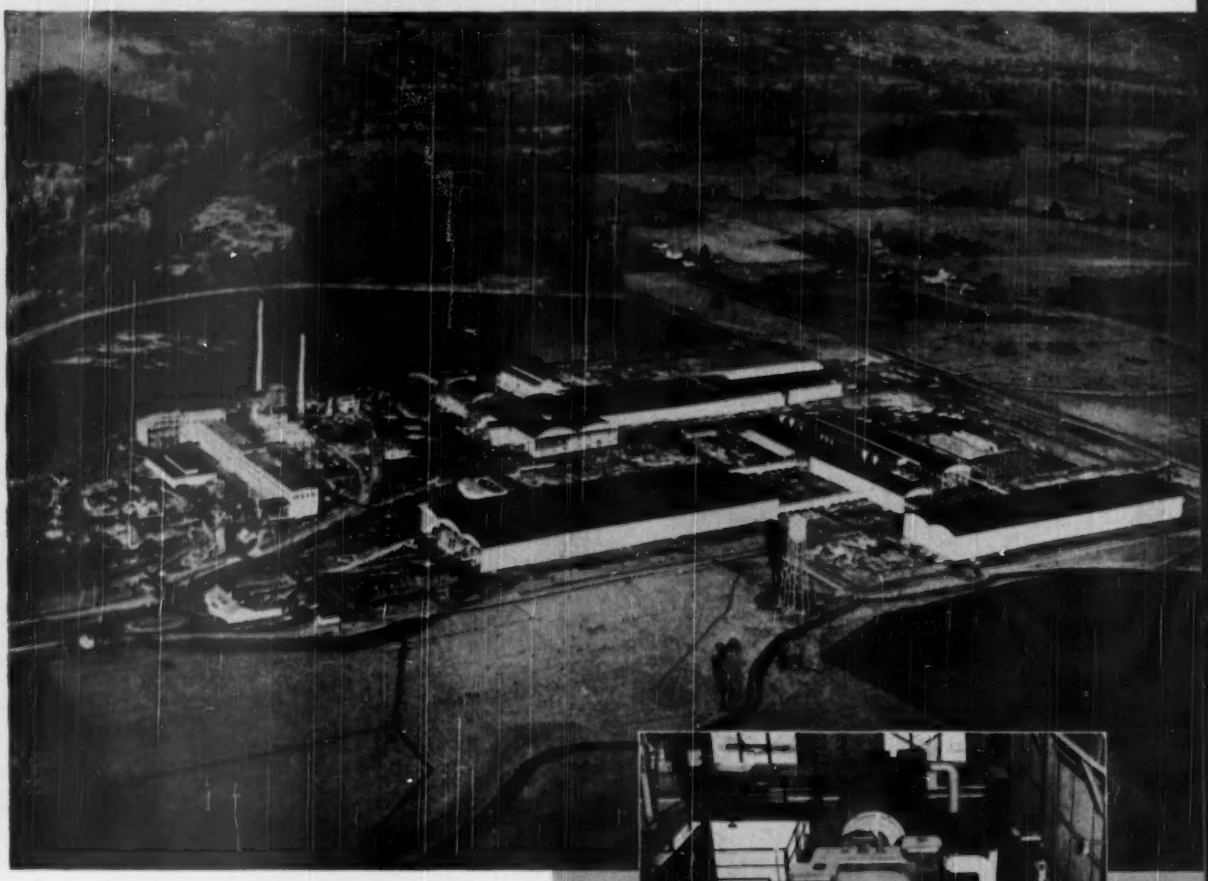
Kimberly Mill's First Training School Graduating Class

The first graduating class of 17 from the Kimberly, Wis., mill's trades training school received diplomas last month from J. T. Doerfler, mill manager of that Kimberly Corp. mill. The Kimberly mill school started in Jan. 1947. A total of 57 have graduated from courses in other K-C mills where the courses began as early as 1940.

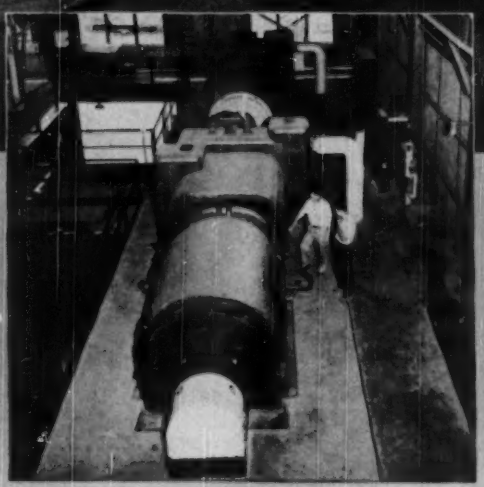
W. R. Kellett, assistant vice president and general superintendent of all K-C mills, told the Kimberly graduates they should not lose their desire to learn. Ron Evans, plant engineer, was toastmaster. Guests included Jim Whelan, K-C's chief engineer; Chester Boast, Kapuskasing mill chief engineer; Joe Foley, staff maintenance engineer, and Al Wilkenson, Kimberly's production manager.

YOU CAN BE **SURE**.. IF IT'S

Westinghouse



TWO POWERHOUSE STACKS mark Weyerhaeuser's new Pulp and Paper Mill at Springfield, Oregon. Leftover scraps from the Weyerhaeuser lumber mill at right are converted into Kraft Paperboard. Lumber is fully utilized in this operation. So is power. Westinghouse Specialists helped co-ordinate the electrical apparatus into a plant that makes full use of every kilowatt generated.



POWER GENERATION . . . Starting point of Weyerhaeuser's electrical system in this modern powerhouse. These two Westinghouse 11,500-volt Turbogenerators supply three-phase power for both the paper mill and lumber mill operated in conjunction with it. In the foreground—a 9,375-kva unit; behind it—a 6,250-kva installation.

Westinghouse

EQUIPMENT FOR THE PAPER INDUSTRY

It's All Westinghouse at Springfield!

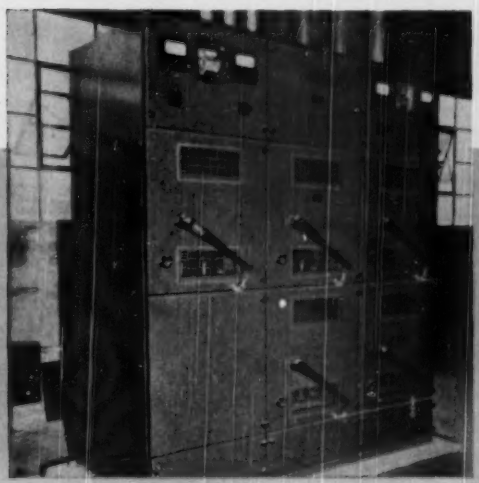
Handling the electrical requirements for a modern Pulp and Paper Mill is no small problem. There's a great deal of apparatus to buy, a lot of co-ordinating to do.

When Weyerhaeuser Timber Company planned a new mill at Springfield, Oregon, Westinghouse Paper Mill Specialists were called in for technical advice. Working with Weyerhaeuser's consulting engineers, Westinghouse helped co-ordinate the electrical apparatus. Result: knotty engineering problems and complex purchasing procedure were held to a practical minimum. And most important—a plant was built that generates power economically, distributes it safely, uses it efficiently.

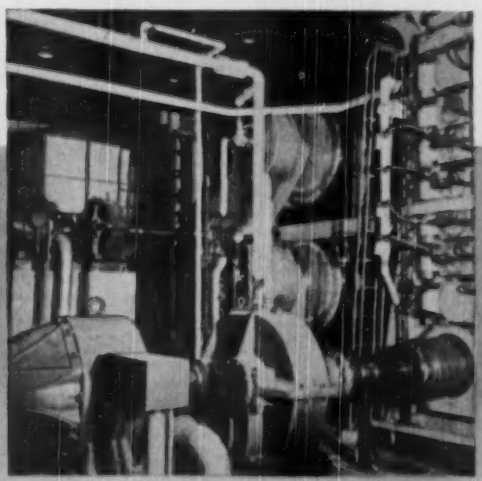
Apparatus to Meet YOUR Specific Needs

Westinghouse is geared to handle the electrical requirements for Pulp and Paper Mills. Apparatus is designed to meet the specific needs of your plant. After 30 years of close association with papermaking we know the problems and how to go about solving them.

When you want experienced help on electrical equipment—for a new mill or your present plant—call your Westinghouse office or write: Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-94834



DISTRIBUTION . . . These three panels of air-breaker switchgear send power to motor control headquarters—the 440-volt Control Centers. All switchgear and controls are enclosed in metal-clad cubicles, protected against moisture and chemical fumes. Prime factor in design of the Distribution System: the need for continuity of service.



UTILIZATION . . . The mill's paper machine has a modern Sectional Motor Drive. Shown here—d-c motors driving the first and second calender stacks through Westinghouse Speed Reducers. Each motor is supplied by its own d-c generator. Hence, each section of the paper machine can be separately, accurately controlled.

Personals

NORTHEAST

New President of Brown Moves Office to Boston

Lawrence F. Whittemore (right), the new president of Brown Company and Brown Corp., as we announced last month, will have offices at 210 Lincoln Street in Boston, Mass. Previously the office of president was in New York City. The central sales office will continue in New York. Mr. Whittemore also will maintain offices at the mills in Berlin, N. H., and La Tuque, Que.

Frederic G. Coburn, whose resignation was accepted with regret by directors, agreed to remain on the board. He assumed the presidency from Aug. 1943 to Jan. 1, 1950 at request of the directors, to carry through a program of rehabilitation of company business. He announced the company's finances were in excellent condition and earning power greatly strengthened.

Mr. Whittemore recently resigned as president of the New Haven Railroad. On Brown Company's board since 1941, he was also for years a New England lumberman and expert in forest management and by-product manufacture.

ARTHUR E. WINSLOW, with Hollingsworth & Whitney Co., since 1912 and manager of personnel at the Maine mills has retired and has been succeeded in that post by *ELMO B. STEVENS*, who was assistant manager of personnel.

JAMES H. McCLURE, formerly of Watertown, N. Y., has taken the position of chief industrial engineer with Sherman Paper Products Co., Newton Upper Falls, Mass.

REGINALD JAMES DAVIS has become sales manager of the boxed stationery division of the Whiting Paper Co., Holyoke, Mass., which has sales offices at 475 Fifth Ave., New York City.

RUSSELL A. STEVENS, formerly diesel department manager, Los Angeles branch, has been appointed manager of the company's Boston branch house, according to a recent announcement by Fairbanks, Morse & Co. He succeeds V. O. Harkness who has assumed the duties of diesel sales department manager for the Boston area.

Fifty-Two Years Record As Paper Industry Executive

Arthur E. Shattuck (right) vice president and manager of supply, of the Strathmore Paper Co., West Springfield, Mass., has one of the longest records of continuous service of any executive in the paper industry.

Mr. Shattuck has been with the Strathmore Paper Co. for 52 years. He started working as a bookkeeper in 1897 for Strathmore, then known as the Mittineague Paper Co. He became superintendent in 1901 and held this position until 1917. Since that time he has been manager of the supply and standards division.

DAVID L. BORN, who became the control chemist at Finch, Pruyn & Co., Glens Falls, N. Y., late in '49, came from New York State College of Forestry, Syracuse, where he was engaged in pulp bleaching research. He graduated from N.Y.C.F. in June, 1948. The technical director at Finch, Pruyn since 1948 has been *RICHARD V. OSBORN*, a 1944 Clarkson College graduate, who had been with St. Regis at Kalamazoo and with Newton Falls Paper Co., Newton Falls, N. Y.

ALFRED J. MERRITT of Stein, Hall & Co., Inc., was elected president of the Kapok Association in New York.

HERBERT J. COOPER has been appointed assistant to the general manager of the Cooper Alloy Foundry Co., Hillside, N. J., according to Dan Talbott, vice president and general manager.

D. A. (PAT) MORAN became resident manager of the St. Regis mill at Deferiet, N. Y., Jan. 1. For 24 years he has been with Mead Corp. at Chillicothe, O. *W. A. ZONNER*, manager of the Deferiet mill and general manager of manufacturing for the division in New York State, moved to the New York office to head a newly-created Manufacturing Development Department. In this new position, in which he will report to Benton R. Cancell vice president, Mr. Zonner will act as a liaison between sales and manufacturing in the development of new products and new and major accounts.

FRED E. SMITH retired Jan. 1, at the East Walpole, Mass., mill of the Hollingsworth and Vose Co., where he was mill superintendent and where he worked for the past 54 years. Mr. Smith was born in Needham, Mass., April 27, 1876 and went to work at Hollingsworth & Vose as an office boy. He lives at 34 Calvert Road, East Walpole.

R. R. CLOW recently resigned as vice president of the Maryland Container Co., Baltimore, to become associated with Federal Container Co., Philadelphia, as production manager. Both organizations are wholly-owned subsidiaries of Fibreboard Products, Inc.

EUGENE A. HOLLAND, of Philadelphia, veteran industrial and technical advertising man, who has been associated with several paper industry machinery and supply firms, died suddenly Jan. 10.

Fletcher Thornton Dies At New Jersey Home

Fletcher P. Thornton, first vice-president and a director of Stowe-Woodward, Inc., and a member of that organization for 29 years, died Dec. 18 at his home in Summit, N. J. Mr. Thornton was a pioneer in the industry, and prior to his association with Stowe-Woodward he had been connected with Boston Belting Co. He is survived by his wife and three sons, Fletcher P. Jr., Capt. James S., and Peter Thornton.

RAYMOND E. RENDALL, pioneer forestry expert, died in late December at Augusta, Me., at the age of 58. Born at Raymond, N. H., he was a graduate of the University of Maine and the Yale University Forestry School. For several periods in his life he was manager of the Bates College Forest at Alfred, Me., and is best remembered as Maine Forest Commissioner. He served in World War I with the 20th Engineers, a forestry regiment.

HENRY J. ABERNATHY, formerly of Continental Paper Co., Ridgefield Park, N. J., is now mill manager at National Folding Box Co., Inc., New Haven, Conn.

M. L. GARDNER has been appointed engineering and service manager of the New England district for Westinghouse Electric Corp. with headquarters in Boston. Mr. Gardner was born in Mt. Gilead, N. C., and joined Westinghouse in 1924. He succeeds F. P. Taugher, whose appointment as manager of engineering, industrial control division, was recently announced.

Careers of Tom Barry And Jack Hierlihy Separate

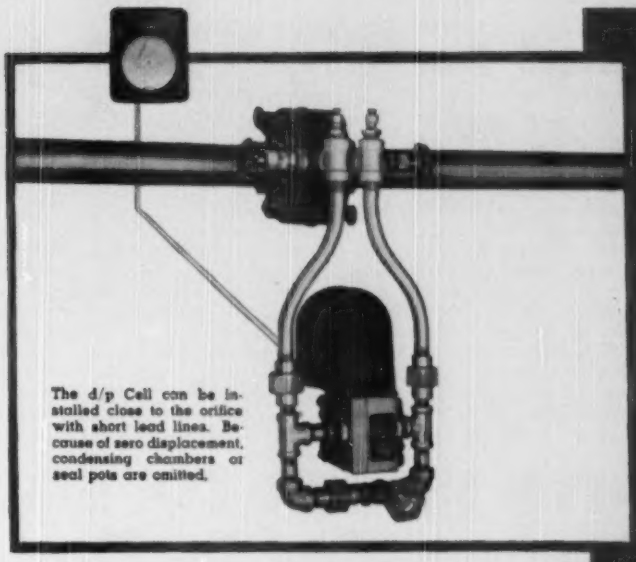
As we reported briefly in a recent issue, two w.k. Maine men changed jobs.

Tom Barry is assistant manager of the two northern mills of Hollingsworth & Whitney Co., in Winslow and Madison, Me., under Robert Nivison, vice president and manager, at Waterville, Me., while J. W. D. "Jack" Hierlihy took over Mr. Barry's post as acting manager of the Fraser Paper, Ltd., mill at Madawaska, Me., as we reported briefly last month.

Both are emphatically of Irish descent, Mr. Barry having been born in Hamilton, Ont., and Mr. Hierlihy in Tabusintac, N. B. They have had long careers with Fraser, Mr. Hierlihy being assistant manager at Madawaska under Mr. Barry.

Mr. Barry is a 1921 chemical engineering grad from the University of Toronto, and his first job was at Merritton, Ont., and Spanish River, Ont., training grounds for many famed pulp and paper makers. He moved to Madawaska in 1930. He directed 700 employes at Madawaska in the six-machine catalog and bond mill. H & W's Winslow mill also has six machines in addition to a sulfite mill and bleach plant, while groundwood is made at Madison.

Mr. Hierlihy is a Mount Allison University product, and was with Abitibi before joining the Fraser group in New Brunswick, later moving to Madawaska.



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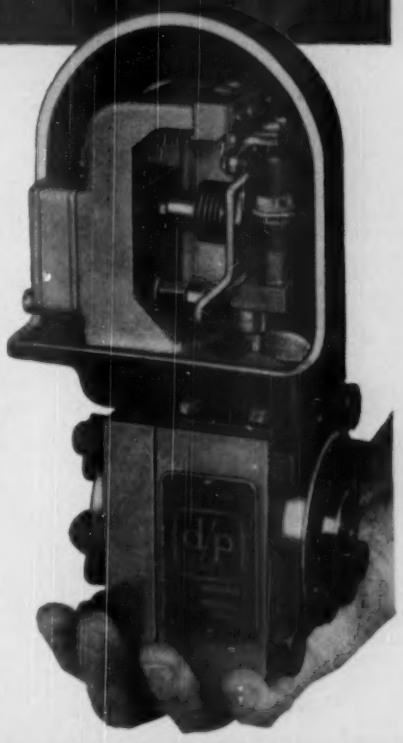

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SCHWEITZER VIS-A-VIS OLIN?
Increased Demand for Cigaret Paper

Behind this month's big story of the purchase of the Smith Paper Mills five cigaret and condensing paper plants clustered around Lee, Mass., by the Schweitzer interests, is the question of where this now places the much larger Schweitzer organization in relation to its chief competitor, Ecusta Paper Corp. They are the two big organizations in the highly specialized and closely-guarded cigaret paper industry which is the key to the multi-million cigaret field itself.

In an exclusive story in our last issue (Jan., page 31) we reported details of the purchase of Ecusta by the dynamic Olin Industries, Inc., who plan an 8-machine, 33,000,000 lbs.-per-year cellophane plant on Ecusta properties at Pisgah Forest, N. C. An informed source said Olin would use wood pulp for cellophane and not the flax pulp used in cigaret manufacture by Ecusta and others.

John M. Olin, president of that firm, said the ample supply of treated water, power and steam at Ecusta would make it possible to cut almost half a year in getting the cellophane plant in operation. Harry M. Straus, chairman of Ecusta and former president, emphatically declared Ecusta's own machines would continue to make cigaret paper and Bible paper.

Incidentally it requires about nine-tenths of one pound of wood pulp, so far the only satisfactory pulp for this purpose, to make one pound of cellophane. The other tenth is from chemicals, water, etc. So the Olin plant, operating under license from DuPont, will use 29,700,000 lbs. of pulp (14,850 tons) per year. The expanding dissolving pulp industry can supply this.

Ecusta, brain child of Mr. Straus, was formed in 1939, primarily by three of the "big-four" cigaret manufacturers, R. J. Reynolds Co., Liggett & Myers and P. Lorillard Co. German-born Mr. Straus, who controlled many of the mills producing paper for these companies in France, convinced them that with the imminence of war, supplies might be cut off, and that they might establish their own firm at a cost of close to $10,000,000.

The companies pledged approximately this amount, (Philip Morris, then a far smaller producer than now, also chipped in) but American Tobacco stayed out and subsequently turned to Schweitzer as its supplier.

During the war, supply could hardly keep up with demand. Since the war's end, difficulties have been increasing. Lack of dollar exchange in the export market has cut off this fruitful source of business. Competition has been getting keener.

Schweitzer has made an aggressive drive, and has gained much European business. Additionally, almost a year ago, it sent its own representative to China, which next to the United States, is the world's largest cigaret paper user, and now has the bulk of the sales of U.S. paper to this country. And **PULP & PAPER**, on a tour of Mexico, uncovered the news that the Schweitzer process was going into a new mill in Tlalnepantla, a brand new industrial town 8 miles north of Mexico City.

In Oct. 1949, Ecusta retained Gen. Lucius D. Clay, former U. S. military governor of Germany, as president. On Nov. 25, Olin Industries took over Ecusta, and General Clay resigned, because of his connection with the Army wartime munitions procurement he wished to avoid linking his name with Olin, a wartime munitions maker.

There is no standard machinery for manufacturing cellophane, although in some respects it resembles papermaking. Each producer usually either builds his own equipment or has it built according to his specifications. Many parts, such as bearings and the like, are standard but the machinery for manufacturing cellophane will vary from one manufacturer of the film to another. The greater portion of DuPont equipment is built in its own shops and these facilities will be available to Olin.

SMITH PAPER CO. SOLD
Changes May Be Made

Certain changes of production arrangement "and equipment auxiliary to the paper machines" may be in order later on as a result of the purchase of Smith Paper Co., and its five small mills in and near Lee, Mass., by Peter J. Schweitzer, Inc., **PULP & PAPER** was told in New York early in January.

Announcement of the purchase was from **Louis P. Schweitzer (above) president**, and the statement on possible equipment changes from another official at Schweitzer headquarters in Manhattan. Mr. Schweitzer predicted increased consumption of cigarets and wider markets in the U. S. and Far East.

Smith Paper Co., which will be operated as a division of the Schweitzer organization, operated the oldest specialty paper mills in the U. S. and was acquired by Schweitzer from Brown & Williamson Tobacco Corp. which was manufacturing cigaret papers for a number of its brands as well as "roll-your-own" booklets.

Its new parent company operates plants in Jersey City, Elizabeth and Spotswood, N. J., and Mount Holly Springs, Pa., making papers for a wide number of cigaret brands in U. S. and Canada. The Schweitzer organization owns Papeteries de Malaucene in Carpentras, France, supplying papers for Europe and the Far East. Both Schweitzer and Smith also make condenser and carbonizing papers.

Although the amount of the deal was not revealed, it is believed one of the largest in the industry in recent years inasmuch as the Smith properties have been given reported value in excess of $10,000,000. It was not stated whether Smith personnel on the management level would remain with the Schweitzer division.

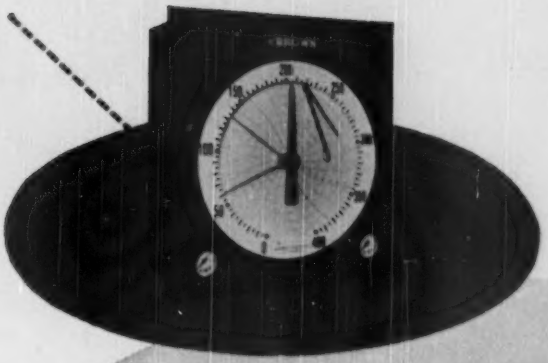
Louis Schweitzer's brothers, William P., and M. Peter, are vice president and treasurer respectively. All three are internationally and widely known as "radio hams," being avid addicts of that hobby.

Schweitzer already operates its own flax mills in Windom and Grove City, Minn., and Smith has flax mills in Red Lake Falls, Minn., assuring Schweitzer of a large supply of domestic raw materials. Joint research facilities will be turned toward achieving further improvements in cigaret and other specialized paper.

Established in 1908, Peter J. Schweitzer, Inc. was originally an importer of cigaret paper. When World War I cut off European supply, Schweitzer established his first mill in 1920 at Jersey City, sent his two oldest sons to the University of Grenoble, and to gain experience at the Schweitzer mill in Southern France. The father's death in 1922 put his son, Louis, then 23, and William, 21, in command of the business headed by their mother, Rebecca, then 43. The company now does ten times as much business as in 1922.

In 1940, the firm added four new cigaret paper machines; in 1948 another was added, and in 1949 the tenth machine, largest cigaret paper machine in the world, with a capacity of making enough paper for 4,800,000,000 cigarets per month.

The Smith firm was founded by then 23 year old Elizur Smith, who purchased the first paper mill built in Lee in 1806. He purchased the Centennial mill in 1850. It was the first company in the U.S. to use wood pulp for paper and the first to use American flax in commercial production of cigaret paper.



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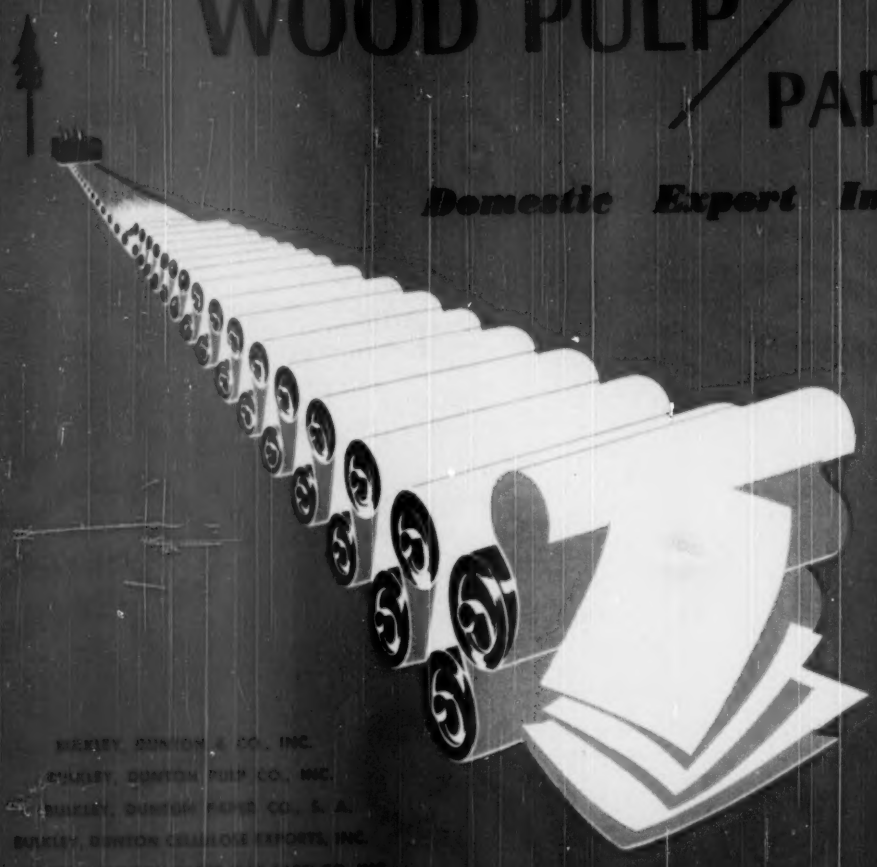

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Personals

MIDDLE WEST

CHARLES M. KOON, former Tech. Director, Munising Paper Co., Munising, Mich., is now in Paris as Asst. Chief of Pulp, Paper & Lumber Branch, Economic Cooperation Administration under Pierre Landry, formerly of Longview, Wash.

RHINELANDER LOSES TOP MEN: Johnson and Dozier Die Within 12 Days of Each Other

A sad blow came to Rhinelander Paper Co. and Rhinelander, Wis., when two of their leading executives and citizens died within 12 days.

Lewis Dozier, veteran paper mill superintendent, died at 10:15 a.m., Jan. 16, in Rhinelander after a series of apparently very mild heart attacks.

F. W. "Stub" Johnson, plant manager and chief engineer of Rhinelander, died at 11 p.m., Jan. 4, in Rochester, Minn., where he had undergone two operations.

Word from Dick Dozier, Louis' son who is in the paper industry in Kalamazoo, told of his father's passing. The widow and daughter also survive in family beloved and widely known among travelers.

Mr. Dozier, native of Brooklyn, helped Folke Becker, president of Rhinelander, rebuild and run the Russell, Mass., glassine mill when Mr. Becker first arrived in the U. S. from Sweden. They moved together to Rhinelander 21 years ago.

Mr. Johnson, who was 58, was Mr. Becker's chief aid.

Born Feb. 18, 1892, in Neenah, he received his grade and high school education there. He graduated from the University of Minnesota in mechanical engineering.

He joined Kimberly-Clark Corp. as superintendent of maintenance and construction. After several years, he then joined C. R. Meyers Construction Co. of Oshkosh, Wis., as chief engineer. Nine years later, in 1934, he joined Rhinelander.

R. S. HOLCOMB has resigned as purchasing agent of Nekoosa-Edwards Paper Co., Port Edwards, Wis., and has been succeeded by *J. K. VANATTA*, who also continues his responsibilities of directing scheduling and planning. Mr. Holcomb had been associated with Nekoosa-Edwards since 1924 and was purchasing agent since 1933. Mr. Vanatta, graduate of U. of California, joined Nepco in 1927 as an industrial engineer and was purchasing agent in 1931-32. During the next four years he was paper development engineer. In 1938 he was placed in charge of production scheduling. Since 1946 he has also directed materials handling and planning.

Rex President Killed

John R. King, 28, youthful president of Rex Paper Co., Kalamazoo, Mich., was killed when his automobile overturned while he was driving it Dec. 29. Apparently either Mr. King fell, asleep at the wheel or was forced off the road by another car.

Mr. King was the son of Mrs. Helen R. King, chairman of the board and manager of the Rex mill, and the late Merrill B. King, and the grandson of John F. King, who established the business 40 years ago. In 1942 young King was with General Patton in the Third Army in Europe. After the war he returned to Rex and was elected president.

HAROLD SIEBERS, of a famed Kaukauna paper industry family, is back on his job on maintenance for Mill No. 1 at Thilmany Pulp & Paper Co., after undergoing a major operation.

J. H. DAVIDSON, Minnesota and Ontario Paper Co.'s veteran chief engineer, has moved his engineering department headquarters from Minneapolis to International Falls, Minn., and will be directly responsible to Clarence Larson, vice president in charge of production. Mr. Davidson will exercise staff supervision over all engineering activities at International Falls, Fort Frances, Ont., and Kenora, Ont., mills. Mr. Davidson announced that assisting him on his immediate staff would be F. W. Woodman, electrical engineer; B. J. Shields, mechanical engineer; and A. S. Thompson, estimator. Mr. Davidson, graduate of University of Maine, joined Mando in 1921 and was at International Falls until transferred to Minneapolis in 1925.

S. V. CAIN, president of S. V. Cain Paper Co., Peoria, Ill., has been endorsed by the Peoria mayor and a group of citizens of Peoria and neighboring cities for the Democratic nomination for state treasurer.

FIBER MICROSCOPY EXPERT DIES

Dr. John Henry Graff, who organized and developed a science of fiber measurement and analysis for this industry, is dead.

In a heretofore unpublished interview with **PULP & PAPER**, obtained just a couple of years ago in anticipation of the possibility that he would be voted the TAPPI Gold Medal, Dr. Graff related some very amusing as well as interesting stories about his work and his experiences. They are published here for the first time.

This friendly, energetic little Norwegian immigrant was one of those "near-misses" of this industry, who just didn't quite get the votes to win the Gold Medal, and so this "interview" has been residing in our "hold file" until now.

Dr. Graff, 72 years old, died of a heart ailment in Appleton, Wis., Dec. 30. He founded the fiber microscopy group of the Institute of Paper Chemistry there in 1934 and was its chief until he became a research associate emeritus in 1946. His contribution has been a practical one—he developed a technique which he personally taught to some 300 or more technicians in this industry. His publications were numerous, including these text books: "Color Atlas for Fiber Identification," "Pulp and Paper Miscroscopy" and "Fiber Analysis." In this field he contributed more than any other individual. He developed stains and technics, cross sectioning, microphoto methods, speck analysis charting, etc., for the whole range of mechanical, cooked, bleached or other refined pulps.

He was born at Eidskagen, Norway, May 13, 1877, but two months later he moved to Toten, on Lake Mjosen, in the shadow of a pulp industry, where he spent his childhood, with no idea he would ever go into this industry. He attended the forestry school at Kongsberg and military engineering school at Oslo, Norway. Then he went to Germany for nearly four years — years that influenced the rest of his life. He traveled "on the road" for an electrical manufacturing company and then, for over three years, worked for a railroad equipment company. He recalled that he made a detailed drawing of the first electrical locomotive. His work here in measuring and analyzing crystal formations of metals and alloys gave him the basis for his life work—but he never dreamed that it would then.

He came to the U. S. in 1904 to see the St. Louis Exposition, but he didn't get to St. Louis until 1941. He miscalculated his planned brief stay in New York by six years. In 1907 he married Jeannette Johanson in Brooklyn, also a Norwegian immigrant who had come to America just a month before he did, however they had not known each other in Norway. They had one son, who died at the age of 18. His widow, and a brother and sister in Oslo, survive him.

After six years living in Brooklyn and working in department stores—"the less said about it, the better," he recalled—he advertised for a position in 1910 and by chance a Brown Company salesman saw the ad. The Graffs moved to Berlin, N.H., and lived there for 24 years. He started by "doing a little of everything," in the Brown mills, and then was in the draughting department for a while.

He began showing particular interest in the pulp fibers swishing around in the beaters. There were flashbacks in his mind to the crystal formations of metals in Germany. Thus—with no other background than that, literally "out of whole cloth"—his science was started and for 22 years he headed Brown's microscopic laboratory. During that period, he was elected and served in the Maine legislature.

A long distance phone call from Westbrook Steele of the Institute in Appleton, confirmed by wire, landed him in Appleton on Jan. 22, 1934, but the strange thing about it was that Dr. Graff had inquired about other jobs, with no idea that there might be a post for him at Appleton.

Equipment Contributed
FOR TECHNOLOGY SCHOOL

NEW WILLIAM McCRACKEN HALL, for housing pulp and paper labs, chemistry and physics depts., at Western Michigan College, Kalamazoo.

TRAINING PROGRAM UNDERWAY AT WESTERN MICHIGAN COLLEGE: Left, top—Paper testing equipment in air-conditioned lab, showing folding and endurance tester; caliper; stiffness gauge; tensile strength tester; sizing tester. Left, bottom—Instruction in physical chemistry, training men and women technicians. Right, top Lab for evaluation of pulp, showing Noble and Wood sheet machine with white water return system; students operating proportioner, press and dryer. Right, center—Instruction in fibre microscopy. Dr. A. H. Nadelman standing at right. Right, bottom—Pulp evaluation lab, showing two precision beaters sheet mould; disintegrator; two freeness testing devices.

Contributions are continuing to come in for the new Pulp and Paper Technology School of Western Michigan College, Kalamazoo, Mich. To date total value in cash, equipment and discounts is over $21,500.

Modern equipment is to be provided for classes which began studies this year in Western's new McCracken Hall which houses the college's chemistry and physics departments. Equipment contributed so far includes: two 1½-lb. Niagara beaters, two laboratory sheet molds, Noble and Wood sheet machine complete with white water return, pump and press, disintegrator, fiber classification grid plate, Bauer McNett Classifier with seven screens, and forty-one other important pieces of equipment.

Contributors to the Pulp and Paper Laboratory equipment fund include:

Albany Felt Co., Allied Paper Mills, American Coating Mills, American Cyanamid Co., Anheuser Busch, Beall, Gibson & Roush Electric, Beloit Iron Works, Bermingham and Prosser Co., Black-Clawson Co., Buffalo Electrochemical Co., Bulkley Dunton Pulp Co., Cameron Machine Co., Commercial Testing & Engineering Co., Consumers Power Co., R. Cramer, A. E. Curtenius, Dennison Mfg. Co., Detroit Sulphite Pulp & Paper Co., Dow Chemical Corp., Edgar Bros. Co., Electric Construction & Machinery, French Paper Co., Geigy Co., General Dyestuff Corp., Gottesman Foundation, Hercules Powder Co., Herman Mfg. Co., Holyoke Wire Cloth Co., Hotel Harris, Hudson Sharp Machine Co., Johnson Corp., E. D. Jones & Sons, Kalamazoo Mill Supply Co., Kalamazoo Paper Co., Kalamazoo Vegetable Parchment Co. and Louis C. Kingscott & Associates.

Klose Electric Corp., Samuel M. Langston Co., Lee Paper Co., Lindsay Wire Weaving Co., Link-Belt Co., J. E. Loughead Co., Mac Sim Bar Co., Malcomson, Fowler & Hammond, Michigan Paper Co., Midland Coal Corp., Miller Davis Co., National Aluminate Corp., Noble and Wood Machine Co., Paper and Twine Ass'n., Peninsular Paper Co., B. F. Perkins & Sons, Pioneer Paper Stock Co., Reichhold Chemicals, Rex Paper Co., Rice-Barton Corp., Ronnigen Engineering Sales, St. Regis Paper Co., Solvay Sales Corp., Southern Clays, Stephens-Adamson Foundation, Stowe-Woodward, Sutherland Paper Co., Thiele Kaolin Co., W. S. Tyler Co., R. T. Vanderbilt Co., Wallace and Tiernan Co., Watervliet Paper Co., Weyerhaeuser Timber Co., Woodruff Coal Co., Wrenn Paper Co., and Wyandotte Chemicals Corp.

Kansas Commission Okays 50-Ton Straw Pulp Pilot Plant

Construction of a pilot plant in the Topeka, Kans., area, which would make about 50 tons of bleached straw pulp for production of specialty papers and newsprint, has been recomended by the Kansas Industrial Development Commission. It would be the initial step toward production of straw pulp newsprint and other papers.

New Research Laboratory For Marathon Corp.

D. C. Everest, president of Marathon Corp., announces the opening of the new Central Research Laboratory at Rothschild, Wis. Dr. Allen Abrams, vice president in charge of research, states that the new laboratory will be used for both fundamental and applied research pertaining to the company's products and processes; particularly those relating to wood, pulp, paper, and lignin products. Research investigations relating to converted products will continue at Menasha, Wis., under Dr. D. W. Davis.

The new building is constructed of structural steel, reinforced concrete and brick, with Indiana limestone trim. The windows are hermetically sealed double glass, for insulation, and the building is air-conditioned. There are three floors, each containing approximately 8000 square feet.

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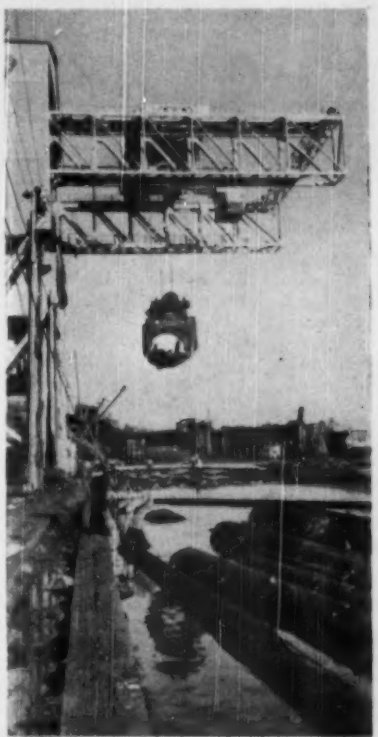

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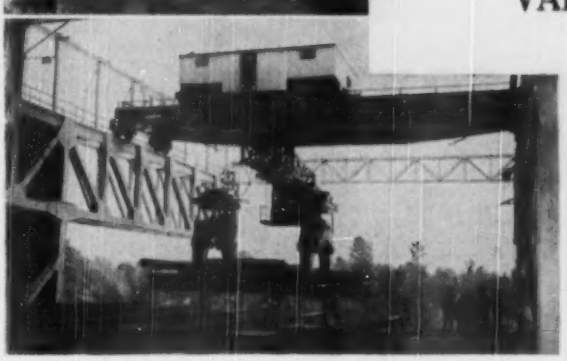

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SAFETY MARCHES ON!

Perfect safety records of two major northern kraft mills *were* still being lengthened in mid-January. Thilmany Pulp & Paper Co., at Kaukauna, Wis., held a party for all employes Jan. 8 to celebrate completion of 1,733,439 man hours without a single lost time accident, and Longview Fibre Co., and Longview, Wash., passed the 1,500,000 man-hour mark the next day and intensified its campaign.

Many ex-Thilmany men are on the staff at Longview and were chiefly responsible for construction and operation of that mill, but there is no connection between the companies other than a sentimental one.

Charles R. Seaborne, builder of Longview Fibre and now vice president in charge of manufacturing at Kaukauna, promised his staff they would receive national recognition of the Safety Council when they reach the 2,000,000 man-hours mark. Thilmany's 1,230 employes had rolled up 261 days without a lost-time accident when the Jan. 8 party was held. The lower mill had 261 days; the upper mill 365, and the bag factory 956, at that time.

This second biggest paper mill in the West shows it is really serious about safety by starting the new year off with a 12-month safety contest for all employes. Awards are available for 450 winners, including dinners and a program for 12 winning teams, and individual delegates from the winning teams to attend the Pacific Coast joint labor-management safety program as guests on company time and expense.

The contest includes every division of the Longview operation and a total of 41 teams. Competition is on a point team-scoring basis. Five points are awarded for each minor-injury report, 25 points for each accepted safety suggestion, 25 points for each pair of safety shoes sold to team members. Injuries and failures by team members result in point losses as follows: Lost-time injury, 2,000 points; injury requiring physician's care, 50 points; failure to report an injury which later requires medical attention, 500 points; eye or toe injuries resulting from not wearing prescribed safety gear, 200 points in addition to 50 points deducted for doctor's treatment.

Each team started the contest with 5,000 points.

R. L. Mullen, safety director, said all supervisors are directly responsible for the program of their departments.

The governing and policy-making body is an 8-man labor-management central committee whose members are Carl Fahlstrom, assistant resident manager, chairman; W. A. Wenzel, pulp mill superintendent; V. V. Peters, mechanical superintendent; Mr. Mullen; Ray Bradford, mechanical department; A. H. Dudonsky, paper mill; Norman Hess, paper mill, and Nate Johnson, mechanical department.

The determined attitude of the plant personnel is reflected in this statement by R. S. Wertheimer, resident manager, and B. K. Wickwire, personnel manager: "We are going to do everything possible to retain the Governor's safety trophy which we won in 1949."

Sutherland Paper Co. Improves Filtration Plant

Mert Fogerty, chief engineer of Sutherland Paper Co., Kalamazoo, Mich., reports that its improved filtration plant is now processing five million gallons of river water daily. Designed to process only three million, this had to be increased in order to rest some of the Sutherland's wells.

The entire country is facing a water shortage, which is just now making itself known in New York, and Kalamazoo is no exception. Sutherland's total water resources are nine million gallons per day. It is using seven million; five million from the Kalamazoo River and two million from wells.

AFL Beats CIO

The AFL Paper Makers union won a landslide victory over the CIO union recently at the big Kalamazoo Vegetable Parchment Co. mill in Parchment, Mich., 841 votes to 291. The "no-union" vote was 31.

Safety Plaque for Box Plant

Paul E. Cooper, president, Pacific Mills, Ltd., presented a plaque, in behalf of Canadian Pulp and Paper Association (western branch) of which he is chairman, to Gordon R. Sharpe, plant superintendent for Canadian Boxes, Ltd., for completion of a year's operation without a lost-time accident. Canadian Boxes of Vancouver, a subsidiary of Pacific Mills, employs about 170 people and the period involved about 390,000 man hours.

Bob Williams, "Grand Old Man" Of Salesmen, Dies in West

Ernest Harmon "Bob" Williams, president and founder of Williams-Gray Co., paper and pulp mill supply firm of Chicago, died Dec. 17 at his home in Beverly Hills, Calif.

Mr. Williams had been identified with the paper industry for over 50 years. He was born in Portland, Maine, July 27, 1870 and so was in his 80th year. Before the turn of the century he was agent for the sale of Meginticook paper machine felts and shortly after was sulfite pulp salesman for the Burgess Sulfite Co., now Brown Co., at Berlin, N. H. About 1905 he decided to establish a paper mill supply business and in 1908 J. Frank Gray, D. C. Everest and Mr. Williams formed the Williams-Gray Co., in which Mr. Williams was active until his death.

He made his home, however, in recent years in California, and visited West Coast mills principally.

Bernard Benson, first vice president; Howard Gerber, second vice president; P. A. Talbot, Jr., treasurer; Miss E. Cuny, secretary; P. M. Foster, C. J. Pennings, Jr., and Harry Hulmes, Jr., are other firm members. The men divided coverage of regions of all U. S. and Canada, representing Knox felts and other lines.

Report on Sweden By Canadian Engineer

Scandinavian mill operators are looking to the Pacific Northwest for technical ideas, according to P. R. Sandwell, of Beecher & Sandwell, Seattle and Vancouver, B. C., consulting engineers, who returned to Vancouver recently from Europe. He was accompanied by his associate, Sven Quist.

Mr. Sandwell's firm has been retained by Holmens Bruks och Fabriks, Swedish pulp and paper manufacturers, with mills at Hallstavik, Lodgby and Narrkoping, to advise their modernization.

Things the visitors to Swedish mills notices, according to Mr. Sandwell, are "good housekeeping", economy in use of raw materials and by-products, and continuing popularity of stainless steel and alloys and tile-lining. He felt technical advancement in Scandinavia and on this continent was proceeding along roughly parallel lines.

Mr. Sandwell believes devaluation of currencies will prove of mutual advantage. European industry was facing stagnation before devaluation, he says, and economic conditions abroad will prevent a competitive threat to pulp mills here.

TISSUE MILL FOR SOUTH

A new tissue manufacturing plant for the South is being completed by Carolina Paper Mills, Inc., at Rockingham, N. C., according to word to PULP & PAPER by L. E. Cohen, vice president.

The former Sonoco paper mill at Rockingham has been taken over for this purpose.

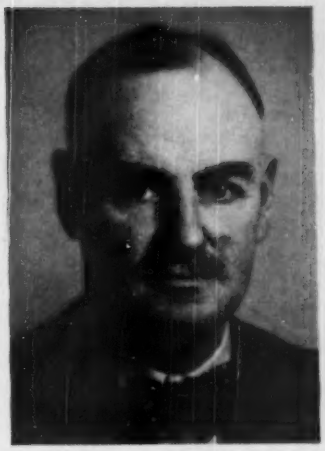
"We have an 80" Fourdrinier paper machine that is equipped with all modern attachments, such as a Downingtown suction press, Foxboro dryer control system, Pope reel, etc.," said Mr. Cohen. "This machine is being converted by the Downingtown Manufacturing Co. to manufacture tissue, with a pick up, and will operate at 1,000 feet per minute.

"We are making plans to install during the coming six months a 72-inch trim cylinder machine, which will manufacture wrapping and waxing tissue. It is our intention to convert all the paper made on these machines and we are immediately installing toilet tissue perforators, napkin converting, waxing, sheeting and rewinding equipment. The converting will be done in a separate building from the paper mill, but no new construction is planned at the present time. We are also installing a new completely automatic package type boiler which will be operated on oil."

Personnel of the former Sonoco plant are being re-hired under the supervision of James A. Allender, formerly with Scott Paper Co., and Windsor Locks Paper Corp., assisted by J. Dan Watford, formerly with Sonoco. H. Cafferata, formerly with Dalemar Paper Corp., will be in charge of converting.

The Price Bros. Story

132 YEARS OLD AND STILL GROWING



A. C. PRICE, who is the President of Price Bros. & Co. Ltd., with head offices in Quebec City.

WILLIAM PRICE, 1789-1867, who founded the company that today bears his name.

BRIGADIER JOHN H. PRICE was President of Price Bros. & Co. for several years, beginning in 1924. Decorated for military service in World War I, he went with a Canadian artillery unit to Hong Kong early in World War II. He was taken prisoner by the Japs and held many months. No longer an executive of the company, although an important stockholder, he is a son of the late SIR WILLIAM PRICE, and an older brother of A. C. PRICE, now President.

One hundred and thirty-two years old—and still growing; that, in a few words, is the story of Price Bros. & Co., one of Eastern Canada's biggest and most progressive pulp, paper and lumber enterprises. It is a story that offers few parallels in the industry.

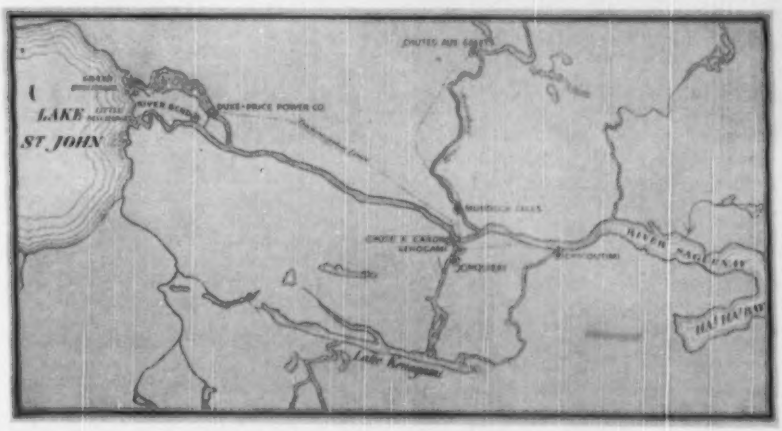
But there is nothing in the physical setup of the organization that suggests antiquity. "The only ancient and old-fashioned thing about Price Bros.," a representative of a competitor told **PULP & PAPER**, "is its history, and that goes back to the beginning of time."

Candidly, it doesn't go back quite that far, but it was in 1810 that William Price, who originated the business, first set foot on Quebec soil, and the organization's records go back almost that far. Although there has been a public stock interest in Price Bros. & Co. for some time, the Price family has always been active in its direction. A. C. Price is the present incumbent of the presidential chair, having advanced through progressive steps from the company's sales organization of which he was previously president.

During the depression years much of the administrative load fell on the capable shoulders of Colonel C. H. L. Jones, who became president in 1937, to be succeeded in the late fall of 1948 by Arthur Clifford Price, seventh of his name to head the company.

G. F. Layne is vice president and general manager. Other vice presidents are: R. F. Armitage, woodlands, who recently succeeded the veteran M. R. Kane; N. F. Blair, lumber operations; A. A. Aitken; P. W. Sims, in charge of finance and treasurer; and H. Cimon, who is also secretary. H. D. Boyle, formerly manager of the paper division, is now vice president in charge of production. Dr. Joseph Edwards, formerly of Alberta, who was until recently assistant paper division manager, is now manager of paper production. Incidentally Dr. Edwards was one of the developers of the Curlator, whose successful introduction at the company's Riverbend mill a year ago marked one of the important technical developments in the industry. Curlator Corp. of Rochester, N.Y., branch of Consolidated Machine Tool Corp., of that city, helped the Price men develop the machine which, by curlating action, increases the amount of useable fiber from digesters, and improves quality.

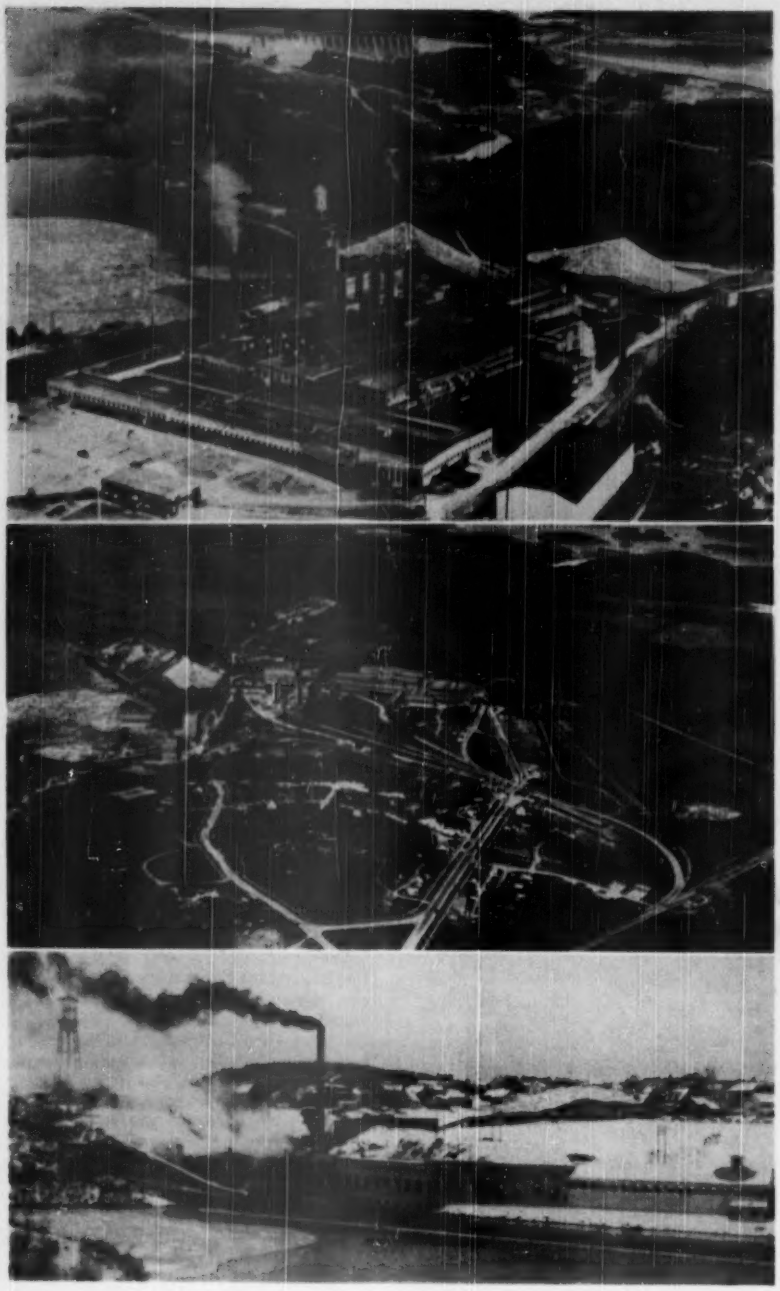
General superintendent of the Kenogami mill is H. O. McInerney; at Riverbend, F. P. Silver and C. S. V. Hawkings at Jonquiere.



Close-up map of Price Brothers industries along the upper Saguenay.

Price Family Were Pioneers

But to get back to William Price. He crossed the Atlantic to look for suitable ship timber after Napoleon had consolidated continental Europe against Britain. The British navy needed timber, and Mr. Price was appointed an agent of the admiralty to see what he could find in Quebec. He found so much that, having attended to the needs of the British navy, he settled down in Quebec and lay the foundations for one of Canada's



PRICE BROS. MILLS IN QUEBEC: TOP: KENOGAMI. MIDDLE: RIVERBEND. BELOW: JONQUIERE. Kenogami has 4-156 in. and 2-234 in. Fourdriniers and a 156-in. Fourdrinier dryer and a 90-in. cylinder machine; makes groundwood and sulfite pulp and has 700 tons capacity for news. Riverbend has 2-234 in. Fourdriniers open stock and 2-234 in. Fourdrinier Minton dryers; makes groundwood and sulfite and has capacity for 600 tons of news. Jonquiere has two cylinder machines, 110 and 76 in.; makes groundwood and 100 tons of tag, bottle cap, bristol, coated boards, wrappers and similar products.

most distinguished industrial dynasties.

As a monument to William Price and his descendants, there are three large and well-equipped pulp and paper mills—Kenogami, 750 tons of newsprint and 50 tons of wrapping daily; Riverbend, 675 tons of newsprint and a potential output of 100 tons of sulfite pulp; Jonquiere, 100 tons of board. The three mills are in the Lake St. John-Saguenay area. In addition, across the St. Lawrence, Price Bros. operate sawmills, several of which help supply chips for the pulp mills. It is a big far-ranging organization, but all its productive operations are confined to the province of Quebec.

Head offices are in the lofty Price Tower, a thoroughly modern office building which offers a sharp contrast to the Old World skyline of Quebec City with its many church steeples and the celebrated Norman architecture of the dominating Chateau Frontenac.

William Price and his family were true pioneers and colonizers. For a generation they were almost the only stabilizing force in the Saguenny valley, issuing notes that circulated freely as currency, owning and operating supply stores, importing livestock for the settlers, building flour mills as markets for their grain. Many of the company's present employes are descendants of members of the original "Compagnie Price."

Price Bros. & Co. is among the first five or six manufacturers of newsprint in Canada, owning or leasing a vast area of forest, extending 100 miles north from Lake St. John, operating huge power plants at Chicoutimi and Chute aux Galets. Most of its pulpwood is driven down a series of rivers — the Peribonka, Shipsaw and Pikauba to name only three of the larger ones. The company is committed to a program of sustained yield, and in view of its long record of stabilized operation its claims to continuity can be accepted as more than an optimistic boast.

Lumber production was the main activity of the Price organization for a good many years. At one time it operated a dozen sawmills. Its lumber production is now concentrated in five modern plants at Metis, Matane, Rimouski, Salmon Lake and Price, all on the south shore of the St. Lawrence. On the north shore, westward to Lake St. John, the timber limits are worked solely for the pulp mills. Incidentally, the company owns full title to four seigneuries granted by the French kings centuries ago before Wolfe defeated Montcalm on the Plains of Abraham and established British control over the old French city and the surrounding country.

The Growth of Price Industries

Price Bros. & Co. was established as a limited liability company in 1904, 37 years after the death of the original William Price in the year of Canada's confederation. One of his sons returned to England and founded the firm of Price & Pierce, for many years an outlet for the company's lumber and today a pulp marketing agency. Three other sons continued the business in Canada as a partnership. All three died bachelors and the company passed to the control of a nephew, another William, grandson of the founder, who was born in Chile and went to work for the company in 1885. It was under his alert direction that the company entered into the newsprint field. He died in a landslide at the Kenogami mill, and control passed to his son, John H. Price, who became president in 1924, and for many years guided the company's expansion.

The Price timberlands and power resources were ready-made for the pulp and paper industry, with thousands of square miles of spruce and balsam in the

H. D. BOYLE, recently appointed Vice President in charge of Mfg. for Price Brothers & Co., with office at Kenogami, Que., is a Prince Edward Islander by birth. He joined Price in 1916 as Master Mechanic, advanced to Gen. Supt. at Kenogami and then Manager of Paper Division over Kenogami, Jonquiere and Riverbend mills.

Saguenay country and an abundance of water and power potential. The Jonquiere mill, which had been started by local interests and operated with indifferent success, was acquired by Price in 1902; the Kenogami mill was built in 1910-12. The Riverbend mill started production in 1925. An electrically operated mill, it ranked for some time as the most modern newsprint plant in Canada.

All three mills have been expanded and improved during the succeeding years, and around them have been developed busy industrial communities. In addition to the power plants already mentioned, there are those at Kenogami, Jonquiere and Murdock Falls, with additional hydroelectric energy being supplied by the Isle Maligne project financed in partnership with the J. B. Duke interests, and the Chute a Caron adjoining Kenogami.

ENGINEERING MEETING
Program for Everett on Feb. 7

The Annual Pacific Coast Engineering meeting, which has become a unique and important gathering in the Far West where there have been many new pulp and paper engineering developments, has a topnotch program for the sessions beginning at 2:30 p.m. Tues. Feb. 7 in the public library at Everett, Wash. The social hour and dinner will be held in the Monte Cristo Hotel.

R. I. Thieme, vice chairman of the Coast technical section, announces the program in a letter to Dr. Walter F. Holzer, chairman:

1. "Recent Developments in Electrical Paper Mill Application," C. D. Reis industry specialist, General Electric Co.

2. "Engineering Materials and Factors Influencing Their Use," L. M. Johnson, resident engineer, Soundview Pulp Co.

3. "Some Recent Developments in the Burning of Hogged Fuel," Mr. De Lorenzi, publicity director, Combustion Engineering-Superheater Inc. (includes movies)

4. "Engineering Developments," T. R. Sandwell, Consulting Engineer, Beecher & Sandwell, Vancouver, B.C.

Harold E. Wessman, new dean of engineering, University of Washington, will be the dinner speaker, and will discuss "Straws in the Winds," indicating the nature of future developments in technology.

Must Start Construction

Under an agreement signed between the Alberta government and Edmonton Pulp & Paper Mills, Ltd., the latter's $10,000,000 newsprint mill (70,000 tons a year) must be under construction by July and completed by Dec. 31, 1951.

The Edmonton firm, promoted by R. O. Sweezey, president, of Montreal, has William M. Owens as board chairman. Mr. Owens is president of Acme Register Co., Minneapolis, and Danielson Safety Valves, Inc., Richmond, Calif. He is a brother of Leo. E. Owens, publisher, of Richmond, and several Texas newspapers.

LOGS IN MILL POND at Price Bros. Kenogami mill. Note how much wood can be seen piled ashore, too.

DR. JOHN M. McEWEN (left), who is the Associate Research Director of the Pulp Division, Weyerhaeuser Timber Co. He advanced to the post vacated by DR. HAROLD BIALKOWSKY, after the latter became Research Director. Dr. McEwen, who is 33, joined the Research Dept. in 1947, going there from the Institute of Paper Chemistry where he received his Master's and Doctorate, with war service in the Army Engineers in between the degrees.

RAYMOND J. SHILLUM (right) who has been elected to the Board of Directors and appointed Vice President in Charge of Sales of Brown-Hutchinson Iron Works, Detroit, Mich. Mr. Shillum was Sales Manager directing the Alloy Sales Division. With Brown-Hutchinson two years, he formerly was with the Metallurgical and Heat Treating Div., Ford Motor Co., 25 years. Brown-Hutchinson fabricates Monel and alloy steels and features stock lines, tanks and head boxes.

VICTOR W. BLOOMER (left), whose election as new President of Appleton Machine Co., Appleton, Wis., we recently reported. Mr. Bloomer has been with Appleton Machine since 1920 and was Treasurer 1940-49. He succeeded the late HENRY P. MADSEN.

RICHARD RADSCH (right), Sales Mgr. for many years, was elected Vice President. He came to Appleton Machine Co. from Thilmony Pulp & Paper Co. in 1930.

Personals

PACIFIC COAST

Carl Macke, Pioneer Of Pulp Product, Retires

Carl J. Macke, vice president of Simpson Logging Co., Shelton, Wash., who led in pioneering a new type of pulp product—a coated insulated board—for the Far West, has retired, according to announcement of William G. Reed, president.

Born in Germany in 1880, Mr. Macke has been with Simpson and the McCleary logging companies, the latter now a part of Simpson, since 1905.

It was under Mr. Macke's direction, as head of Simpson's research and engineering, that the new Woodfiber division was organized in 1947, using wood left-over of the vast Simpson industries to make an insulating board by cooking, refining and papermaking-type processes.

PAUL J. THIESS joined Publishers' Paper Co., Oregon City, Ore., Jan. 9 as assistant plant engineer, filling vacancy created by death of *JOE KERZEL* on Nov. 14. Mr. Thiess had been with W. H. Rambo, industrial plant engineer at Portland. Previous to that he worked on hardboard, pulp and paper outside specifications and designs for Monarch Forge & Machine Works, which followed 13 years in engineering and statistical departments of Longview Fibre Co., Longview, Wash.

B. F. WARREN, converting manager of Crown Zellerbach Corp., Camas, Wash., was a casualty of a recent snow storm, fracturing a vertebra as result of a fall.

HANS C. HANSEN, after 30 years at the same plant, retired as operator of the wallboard machine, Fibreboard Products, Inc., Port Angeles, Wash., and turned his responsibility over to *RAY MAUPIN*.

FRED GILMORE, assistant superintendent of the Puget Sound Pulp and Timber Co., now has more worries than pulp drying. Members of the Bellingham Toastmasters Club have elected Fred president for 1949. Two others of the Puget Sound staff are active in the Toastmasters: Mr. Victor Haner, plant engineer, and Dan Robbins, head draughtsman.

EDWARD FREDERICK, salvage department, Crown Zellerbach Corp., West Linn, Ore., completed 50 years' service with the organization Dec. 1. In January he is to spend a week at CZ San Francisco offices as guest of the company and will there be presented with 50-year service pin. At the end of that month he retires.

THOMAS C. SMYTH, assistant master mechanic at Crown Zellerbach, Port Angeles, was married Dec. 31. Tom and his charming bride, the former Bettyjo Bourdon, also of Port Angeles, honeymooned in California.

HARRY THURLOW, resident engineer for Rayonier, Port Angeles, has received many unique gifts; however one received this year tops them all—12 oranges in a paper sack.

Mullaney Aids Youngman In New College Liaison Work

VICE PRESIDENT FRANK N. YOUNGMAN (left), with BARNEY T. MULLANEY (right) as his assistant, heads up new Central College Recruiting Office for entire Crown Zellerbach organization. This is a new activity in the western industry and it is in addition to other general responsibilities under Mr. Youngman's direction.

Barney T. Mullaney, formerly personnel supervisor, Crown Zellerbach Corp., Port Townsend, Wash., has been appointed to the new and unusual position of collegiate recruiter at the central recruiting offices for the entire C-Z organization in Portland, Ore.

This recruiting program, under direction of F. N. Youngman, C-Z vice president in Portland, has been designed to coordinate and implement collegiate recruiting for all the C-Z divisions. Considerable progress has been made in recent years on the Pacific Coast in interesting top college students in careers in this industry and the selection of Mr. Mullaney for this special work marks an important step in this direction.

J. D. ZELLERBACH, president and director of Crown Zellerbach Corp. and chairman of Fibreboard Products Inc., addressed the Oregon Ad Club and Portland, Ore., Chamber of Commerce Jan. 11 on his experiences as chief of the ECA mission to Italy, and he spoke on this topic before the Seattle Chamber of Commerce on Jan. 13.

ED J. CAVANAUGH, resident engineer at Fibreboard Products, Inc., Port Angeles, took his family on a winter vacation to his wife's relatives at Revelstroke, B. C., 800 miles or so north of Port Angeles on the famed Cariboo Trail. Ed drove the entire trip over icy roads without chains in zero weather. In Revelstroke it was 20° below but he had no trouble until he started into his garage at home where he got stuck in the snow, and had to call a wrecker.

D. J. GALEN, secretary of Crown Zellerbach Corp., San Francisco, made a yearend visit to the Pacific Northwest mills and vacationed for a week at Victoria, B. C., with Mrs. Galen. Later they visited their new grandson, Robert David Galen, born Dec. 19 to Mr. and Mrs *JOHN A. GALEN* of Camas, Wash., where John Galen is in the mill's industrial engineering dept. C-Z Camas mill.

A. F. BENSON, master mechanic, and wife had their son and prospective daughter-in-law home over the Christmas holidays. Art Jr., former air force captain, was to be married Jan. 28, in Grants Pass, Ore., where he is manager for Consolidated Freight Ways.

MYRON A. SCOTT, office manager for Rayonier, Port Angeles, was late for work every morning as it was necessary for him to wait for the milk man to break trail in his back yard, before he could get to the garage.

C. F. MEAGHER, Fibreboard's genial machine superintendent spent his vacation and several weekends painting his recently acquired house.

Metcalf Opens Office as Power and Water Consultant

James I. Metcalf, former western manager for Harza Engineering Co. of Chicago on hydro-electric projects and with 25 years background in utility engineering all over the U. S., Canada and in foreign countries, has formed his own company with offices in the Lloyd Building, Seattle 1, Wash.

James I. Metcalf & Co., consulting engineers on power and water supply, has done work on one Alaska pulp project and has been engaged in industrial development for public utility districts in Washington.

Mr. Metcalf attended Williams College and M. I. T., served as consulting engineer on the St. Lawrence-Niagara and the Tennessee Valley Authority systems. He first moved to the Northwest to organize and head up the system planning and marketing division for the Bonneville Power Administration. He served three years as a lieutenant in Navy Amphibious Forces in the Pacific in radio-radar design and operation.

John Beck Appointed Superintendent at Salem

John Beck became general superintendent of Oregon Pulp & Paper Co., Salem, Ore., early this year, arriving at Salem on Jan. 9. He has been superintendent of the E. B. Eddy Co.'s specialty mill at Ottawa, Ont., since returning from the Canadian army as a Major in 1945.

Mr. Beck started his paper mill career when 15 years old, later graduating as a chemical engineer at University of Toronto. He worked in various departments of Alliance Paper Mills, Ltd., Merritton, Ont., where he became research chemist. Later he went with E. B. Eddy Co. at Hull, Que., where he became night superintendent of the specialty mill and subsequently chief chemist. He joined the Canadian Petroleum Warfare Experimental Unit in military service in 1939.

Mr. Beck fills the vacancy at Salem resulting from death of Douglas B. Armstrong in spring of 1949.

Temple of Moore & White Makes Big Western Swing

Richard U. Temple, sales manager for The Moore & White Co., Philadelphia paper machinery builders, visited Seattle in early January where he completed arrangements for the Dan E. Charles Agency, headed by Mrs. Dan E. Charles, to represent his company on the Pacific Coast.

On this trip, Mr. Temple made a fast round trip tour of the nation by train and plane, covering points in the west from Bellingham, Wash., to Los Angeles and Dallas. In the West he traveled with Hap Felt of the Charles firm.

Dave DeZurik Tours Coast

David DeZurik, vice president and manager, DeZurik Shower Co., Sartell, Minn., made his second trip to Pacific Coast mills in two years and he said the cold and wind and piled-up roads were worse than anything Minnesota had to offer. Walt Salmonson, his coast representative, accompanied him.

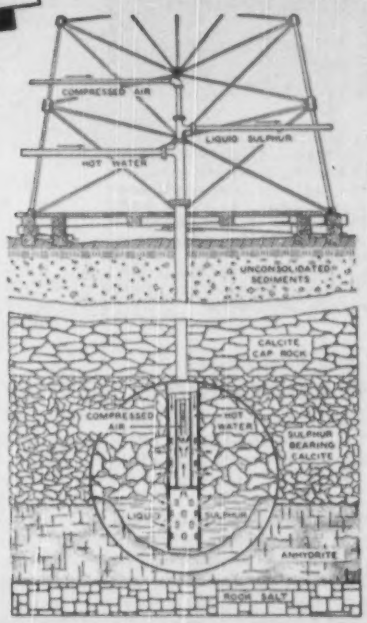
SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

*WELL PIPING

The well equipment consists of pipes of various sizes, placed one within the other and extending from the surface into the sulphur deposit. A 10" or an 8" casing extends to and rests on the top of the cap rock. A 6" pipe, inside the casing, passes below it and reaches into the barren anhydrite. It is perforated at two different levels, separated by an annular collar. The upper set of perforations permits the hot water to enter the sulphur formation and the lower set permits the entrance of the molten sulphur to the discharge pipe fitted inside the 6" pipe.

When a well is "steamed" the hot water passes down the annular space inside the 6" pipe and outside the sulphur pipe and flows through the upper set of perforations into the porous formation. The entire mass through which the hot water circulates is raised to a temperature above the melting point of sulphur. The liquid sulphur being heavier than water, makes its way downward to form a pool and displaces water around the foot of the well, and rises in the well column through the lower perforations into a 3" pipe which is the sulphur discharge pipe. Compressed air released at the bottom of still another pipe fitted inside the 3" pipe rises and mixes with the sulphur column, forming an air lift which raises the liquid sulphur free of water to the surface.



Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.

TEXAS GULF SULPHUR CO. INC.

75 East 45th St. New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

Personals

SOUTH . . .

UP IN THE ETHER where short-wave messages move, he's "Art, of W-4000 in ALABAMA"—conversing with Cuba and Puerto Rico, Spain, East Africa, New Zealand, Australia and many other remote lands. To the pulp and paper industry, he is A. G. WAKEMANA, Vice President and General Manager of Coosa River Newsprint Co., and long a top executive in Kimberly-Clark and other companies. Here, in his den at home in Coosa Pines, Ala., he's a "Ham" operator, long established member of the network of the American Radio Relay League.

SOUTHERN MILL MEN IN THE NEWS (Left to right): CUTT A. YOUNG joins Riegel Paper Corp. as Engineering Manager in charge of construction, mechanical and electrical engineering; he was formerly in charge of engineering and plant development at West Virginia Pulp & Paper Co.'s Charleston plant. R. W. HOHMAN, is now representative of Shartle Bros. Machine Co. in the Virginia area; until recently he was in the Northeast; he has been with the firm 12 years. WILSON J. PAIS, who has been "acting manager" of Foster-Wheeler Corp.'s Houston, Texas, office during leave of absence of Duff Smith, District Manager. DAVE C. "Kilroy" HOLLAND, who is Atlanta Sales Manager for General Chemical Div., Allied Chemical & Dye Corp. EARL J. MILLS, has replaced Ed Wyckoff as Manager of the Houston, Texas, office of Diamond Alkali Co. ROY E. DE LAY, Jr., now serves the pulp and paper trade out of the Houston office of Diamond Alkali Co.

Rossiter Is Still Consultant; McCarthy Becomes Manager

Ernest Rossiter, well known throughout the industry, resigned recently as president of Southern Paperboard Corp., Port Wentworth, Ga., but is continuing at the mill as consultant and remains a director of both Southern Paperboard and Robert Gair, Inc., of which Southern is a subsidiary. It is understood that this follows an arrangement made at the time Southern Paperboard was formed and the mill erected, and that the parent company will operate the mill as any other Gair enterprise with all administrative and executive functions from their New York office.

Robert E. Dyke, president of Robert Gair and former chairman of Southern Paperboard, takes over the presidency also of the latter.

Charles McCarthy, former paper mill superintendent, has been promoted to mill manager .

JULIAN M. GIRARDEAU has been named district sales engineer at New Orleans for Ingalls Iron Works, of Birmingham. He was promoted from the main office. He is a graduate of Alabama Polytechnic Institute ("Aububurn").

E. C. ATKINS AND CO. saw and saw tool manufacturers, Indianapolis, Ind., announces the appointment of Jay W. Pickett as district sales manager of the Southern District, with headquarters at Atlanta, Ga.

Southern Meeting

The Southern Paper Trade Association, according to announcement of Charles D. Hart, counsel-secretary, will hold its spring meeting in Jackson, Miss., at The Hotel Edwards on Friday, March 2. This will be a one-day business meeting.

J. E. JARRIS, adjuster for bag machines and an expert in their operation for Union Bag & Paper Corp., Savannah, Ga., has retired after serving that company for 50 years. He and Mrs. Jarris have purchased a small farm at Bogalusa, La., his former home. He was with Western Bag in Chicago when it was purchased by Union Bag in 1899 and later worked for the company in Kaukauna, Wis.; Hudson Falls, N. Y., and Bogalusa, moving to Savannah in 1937.

R. E. HARTMAN, president of Mobile Paper Mill Co., in Mobile, Ala., believes in making visitors at the mill comfortable and safe while waiting their turn for interviews. In the reception room, which is air conditioned, he has sprinklered system fire protection plus a foam fire extinguisher in the corner. The air is subjected to constant ultra-violet radiation for the radiant destruction of air borne bacteria. Last but not least, there is available for reading a copy of **PULP & PAPER**.

COOSA RIVER NEWSPRINT CO., at Coosa Pines, Ala., has a luxurious reception room: air conditioned; equipped with comfortable seats; and, at certain hours of the day, a contract postoffice station.

Pedro Martin Makes U. S. Trip With Family

Sr. Pedro Martin, of Apartado Postal, P.O. Box 544, Mexico City, who represents Bulkley, Dunton Cellulose Experts and Lockport Felt Co., in Mexico, and is one of the best known supply representatives in that country for pulp and paper mills, motored to Texas with his wife, Lola, and his sons, Pete and Ed, last year, according to word only recently received.

The boys, in chemical engineering at the University of Mexico, visited chemical labs at University of Texas. Their early schooling was at their father's alma mater, St. Andrews' College in Ontario. Sr. Martin's paternal grandfather migrated to Mexico from France in 1852 and both of his maternal grandparents from Belfast and Edinburgh in the same year —1833. They met and married in Mexico.

THEODORE J. GROSS has been retained as technical advisor by the Union Bag & Paper Corp., it is announced by J. L. Knipe, vice president. Mr. Gross, graduate of the U. of Virginia, formerly managing director of the Shipping Container Institute, will act as technical advisor to the Corrugated Box and Board Sales Division in its sales promotion and product development. He will make headquarters at New York City.

Stein, Hall at Atlanta

Stein, Hall & Co., Inc. announces removal of their Atlanta office to new and larger quarters at 80 West Peachtree Place, N. W., Atlanta. The telephone—Alpine 1821.

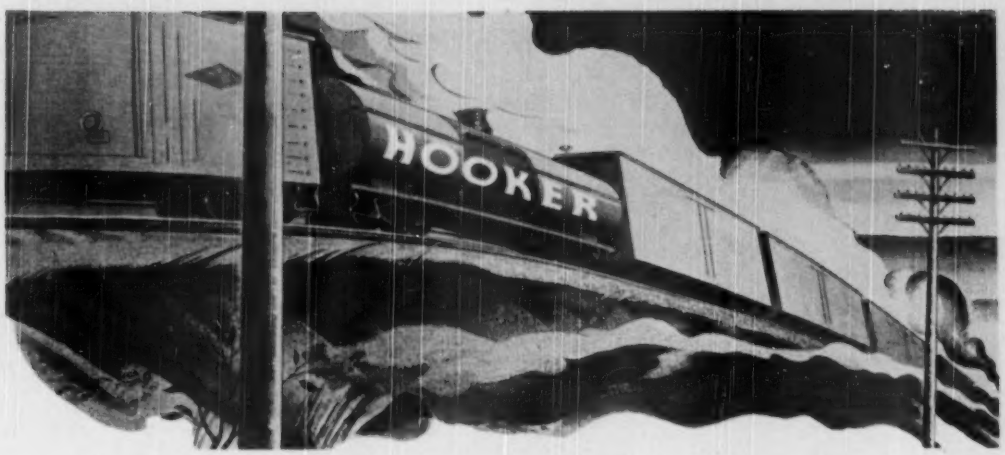
New Record at Savannah

The pulp division of Union Bag & Paper Corp., Savannah, Ga., set a new record in daily average production of 1185.6 tons during November, and this called for distribution of candy bars and cigars. T. T. Dunn is vice president and resident manager and Dr. C. E. Hartford is manager of the pulp and paper division.

Specht Addresses Allied Industries Club

"Paper Machinery Developments in Europe" was the title of a talk by Harry G. Specht, Eastwood-Nealley Co., which drew a record attendance at the first regular luncheon meeting of the Allied Industries Luncheon Club at the Commodore Hotel, New York, on Jan. 9. Mr. Specht recently returned from an extended trip abroad (page 42, Dec. issue) and after having made several general addresses on the British and European situation, his talk at the Commodore was confined to paper machinery.

Following Mr. Specht's address there was general discussion on the advisability of continuing the Allied Industries Luncheon Club. Although attendance has been rising steadily, it has been felt that the club should either adopt a specific program which duplicates with no other activity or should disband. Final decision will be made later.



Liquid Chlorine Versus Bleaching Powder

Although bleaching powder was in regular use by pulp and paper makers for many years, it carried with it time consuming and costly difficulties. Bleaching powder was never stable in storage and when made into bleach liquor, it was difficult to get clear solutions and to eliminate sludge.

When liquid chlorine became readily and cheaply available, the old bleach powder methods could be discarded. Under the stimulus of production for World War I, electrolytic cell design improved, chlorine production increased and economical methods of liquifying and transporting were developed. Hooker engineers and chemists played an important part in this progress. They also helped specifically in the pulp and paper industry not only in improving bleaching techniques but in the designing of bleaching equipment.

Hooker technicians are constantly engaged in making available for you the high purity liquid chlorine and other Hooker chemicals you use. The results of their studies, too, are available in Hooker Technical Bulletins and cover a wide range of subjects of interest to pulp and paper makers. A list of the titles of these bulletins and copies of those you would like to have will be sent to you when requested on your letterhead.

HOOKER CHEMICALS

HOOKER ELECTROCHEMICAL COMPANY
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New York, New York • Wilmington, California • Tacoma, Washington

From the Salt of the Earth

2001 Caustic Soda Muriatic Acid Sodium Sulfide Paradichlorobenzene Sodium Sulfhydrate Chlorine

NEW SOURCE OF CHIP SUPPLY

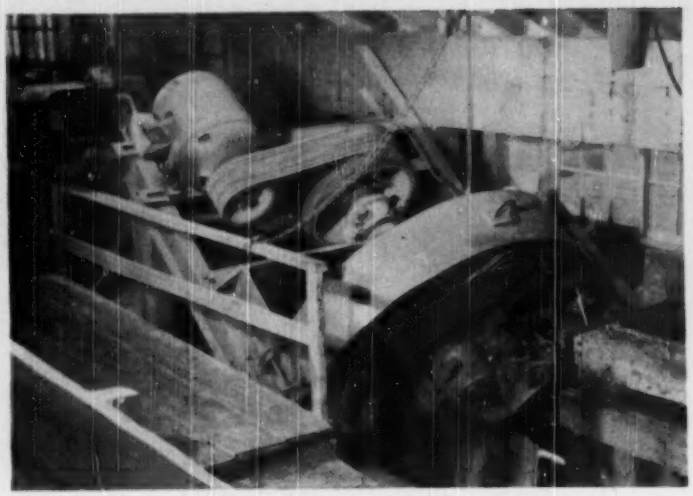
By JAMES C. HAYES
Woodlands Manager,
Everett Pulp & Paper Co., Lowell, Wash.

With this article, we have obtained the first exclusive picture of the Sumner veneer chipper now in use in 14 plywood plants in the Far West and materially increasing the wood supply for pulp and paper mills. Here is wood that was formerly wasted now adding to existing chip supplies to the extent of two-fifths of a unit to every 1,000 ft. log scale cut in a plywood plant. A plant of 5 million sq. ft. per month production would use 2 ½ million board feet of logs (about 500-bd. ft. equals a cord).

Here are the companies now making chips with the Sumner 66-inch six-knife veneer chipper:

Anacortes Veneer, Inc., Anacortes, Wn.; North Pacific Plywood, Inc., Tacoma, Wn.; Canadian Forest Products, Ltd., New Westminster, B.C.; Peninsula Plywood Corp., Port Angeles, Wn.; Puget Sound Plywood, Inc., Tacoma; Robinson Plywood & Timber Co., Everett, Wn.; Simpson Logging Co., McCleary, Wn.; Western Plywood Co., Ltd., Vancouver, B.C.; Walton Plywood Co., Everett; Far West Wood Products Co., Kenmore, Wn.; Three Rivers Plywood & Tbr. Co., Darrington, Wn.; Northwest Door Co., Tacoma; Buffelen Manufacturing Co., Tacoma; and Weyerhaeuser Timber Co., Longview, Wn.

The following report was made by Mr. Hayes at a Seattle meeting of the Pacific Coast Superintendents.



SUMNER 6-KNIFE REFUSE VENEER CHIPPER arranged for Horizontal Feed. Inclined setting of Chipper at Anacortes Veneer, Inc., Anacortes, Wash.

About ten years ago, the manager of one of the veneer plants in Tacoma, Washington, called on the author at the office of the Everett Pulp & Paper Company in Everett. He had with him a sack full of fir chips. These chips had been secured by taking the reject veneer sheets from the green chain in his veneer plant and running them through a clipper. The clipper cut the sheets into strips approximately an inch long measured lengthwise of the grain. These strips were broken up into squares by hand.

The manager of the veneer plant wanted to know if the pulp and paper mill could make any use of such material.

There was quite a bit of the reject material going over the end of the green chain. This material was passed through a veneer hog and the hogged material was burned in a refuse burner or in a Dutch oven furnace as fuel.

The material had very little value as fuel; it created too flashy a fire.

The manager of the veneer plant was wondering if the material could be used in chip form for the making of pulp. If so, was there a chipper on the market suitable for cutting it up; if not, could such a chipper be devised?

The chips looked so good that the author made a trip to the veneer plant in Tacoma to look over the operation. The inspection revealed many construction difficulties that made it impractical to separate this material from other waste which was unusable for pulp production. However, having seen the large amount of usable wood going over the end of the green chain at that plant led the author to make a study of the conditions in the two veneer plants in Everett.

Neither of these firms had very definite ideas as to the quantity of suitable wood which was being burned as reject material but the operators of both plants thought it was a rather negligible amount.

Daily Production Large

Upon request, permission was granted the author to do a little investigating. After spending an hour pulling out and stacking up reject material from the waste conveyor, which looked as if it could be used in making chips, the evidence indicated that a considerable quantity was being wasted. The next problem was to determine whether or not these sheets could be converted into chips.

These reject sheets were eight feet long lengthwise of the grain. They varied from one-tenth to one-seventh of an inch in thickness. They usually were from three or four feet in width, the width depending on how the clipperman trimmed out the defects.

It was very evident that these sheets, too light to be handled in a conventional chipper, would have to be sheared off rather than chopped. The problem was taken to Inar Flateboe of the Sumner Iron Works. Here after considerable study a veneer chipper was evolved.

This original chipper was installed in one of the veneer plants immediately after being made. A production of five to ten units of chips (200 cubit feet per unit) per day was expected of it. The output, however, jumped almost immediately to twenty such units a day.

Today, there are twelve or fourteen veneer chippers in use in the Pacific Northwest, and each of them probably is producing more than twenty units a day.

The present veneer chipper is almost identical in design with that of the original unit. Its base, drive, and disc resemble very closely the comparable parts of a conventional chipper. The difference lies in the way the knives are set in the disc.

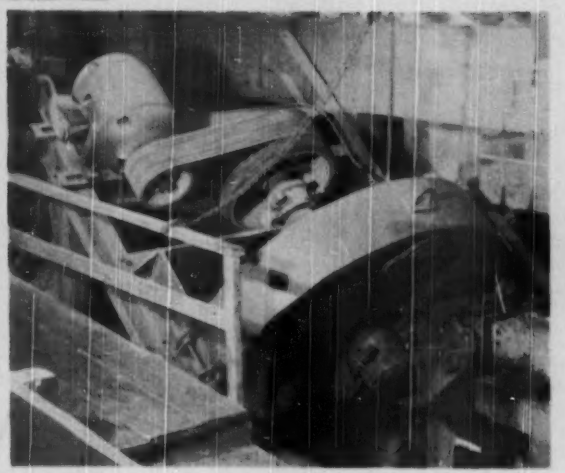
In the conventional pulpwood chipper, the knives are bolted onto the side of the disc; and the straight edge of each knife is the trailing edge.

In the veneer chipper, the knives are set so that each blade extends through a slot in the disc and so that the straight edge of each knife is the leading edge. A very close clearance is maintained between the edge of each knife and the bedplate or anvil upon which the sheets of veneer rest as they are fed into the machine. This assembly gives the same action as a pair of shears.

The throat of the veneer chipper is set at an angle of about 30°. The veneer sheet rejects are fed to it through a pair of power-driven feed rolls which are fluted to insure positive feed. Set as close to the disc as possible, these rolls prevent the sheets from being upended or dragged through the chipper without being cut. The length of chip is determined by the speed of the rolls, and the distance that the knife blade protrudes through the slot in the disc.

The speed of the rolls is sychronized

AUGMENT YOUR PRESENT TIMBER SUPPLY



WITH A SUMNER.. VENEER CHIPPER

Many farsighted and progressive West Coast Pulp and Paper mill and Board mill executives, with the willing cooperation of plywood plant operators who are always agreeable to turning mill waste into income, have cashed in on this opportunity.

In fact, SUMNER VENEER CHIPPERS are currently producing from 50 to 60 thousand units of chips annually. If you are conservation-minded—and all of us are these days—this represents the equivalent of 20 million board feet of logs that will remain standing to be logged another year!

If there is a plywood plant peeling or slicing the species of timber you use within a reasonable rail, truck or water freight rate distance from your Pulp and Paper mill or board mill, you may be overlooking a potential and consistent source of raw material for your plant.

Sumner and only Sumner Veneer Chippers have been in use for more than 10 years, and every operator will vouch for the fact that installation, operating and maintenance costs have always been nominal.

Details will be gladly furnished on request.

CURRENT INSTALLATIONS

Anacortes Veneer, Inc.	Anacortes, Wash.
North Pacific Plywood, Inc.	Tacoma, Wash.
Canadian Forest Products, Ltd. *(Pacific Veneer & Plywood Division)*	New Westminster, B. C.
Peninsula Plywood Corp.	Port Angeles, Wash.
Puget Sound Plywood, Inc.	Tacoma, Wash.
Simpson Logging Co.	McCleary, Wash.
Western Plywood Co., Ltd.	Vancouver, B. C.
Walton Plywood Co.	Everett, Wash.
Far West Wood Products	Kenmore, Wash.
Three River Plywood & Tbr. Co.	Darrington, Wash.
Northwest Door Co.	Tacoma, Wash.
Buffelen Manufacturing Co.	Tacoma, Wash.
Weyerhaeuser Tbr. Co. (Lumber Div.)	Longview, Wash.

SUMNER IRON WORKS
Since 1892
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In Canada: CANADIAN SUMNER IRON WORKS LTD., VANCOUVER, B. C.
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301 Clay Street, San Francisco 11, California, U. S. A.

with the speed of the disc.

The first veneer chippers individually had a 54-inch disc and were of the four-knife type. More recent designs individually have a 66-inch disc which is equipped with six knives.

Chipper's Capacity

The optimum speed of a veneer chipper is approximately 700 r.p.m. Such a chipper commonly is equipped with a 50 h.p. motor; but there are instances where a motor with a rating as low as 35 h.p. is used. The larger motor definitely seems to be better.

The 66-inch chipper has a theoretical capacity of approximately eight units an hour. In several instances, this machine regularly is turning out forty units in eight hours. There are cases where even this production is being exceeded. It should not be the practice, however, to work such a chipper to capacity but rather to keep as little as possible going into it—in other words, to keep the waste from veneer plants operation at a minimum.

Chips produced from veneer rejects are quite satisfactory. They are clean and uniform. Their only possible contamination is bark; and since all veneer blocks are barked before being put in a lathe, bark gives very little trouble.

The bulk of the rejected sheets comes from the sapwood, the youngest portion of the tree, which yields the best fibers.

These chips when compared with other chips, show no appreciable difference in cooking requirements. Since they are uniformly thinner than the ordinary chips, it is possible that there is some side penetration of the cooking liquor. Therefore, in theory at least, they should cook a little faster than conventional chips. However, practice at the Everett mill takes no account of this possibility.

The use of veneer chippers has resulted in the saving of considerable good material which heretofore was wasted in veneer plants. It is conservative to estimate that the twelve or fourteen chippers now in constant use are averaging something better than twenty units a day apiece.

Probably, fifty to sixty thousand units of chips are being produced yearly from this veneer waste. This production represents the equivalent of some twenty million board feet of logs a year. Yet there is still a considerable quantity of rejects that is not being reclaimed.

The veneer chipper is primarily adapted to the chipping of lightweight, thin material, such as veneer sheets or green boards of an inch or less in thickness. It is not adapted to heavier cuts. However, the chipper, with a proving period of about ten years behind it, is playing an increasingly important role in the salvaging of good pulpwood material which otherwise might be wasted.

McGraw & Co. Officers

F. H. McGraw & Co., international engineering and construction firm and paper mill builders elected two new directors, Clifford S. Strike, president, announces. They are Frederick J. Mayo, New York manager, and Donald W. Neville, Chicago manager. Mr. Neville supervised early construction of Coosa River Newsprint Co., at Childersburg, Ala.

CANADA

W. J. ZIMMERMAN of Toronto, who has been engaged to design the plans for the Edmonton Pulp & Paper Mills, Ltd., in Alberta, was formerly chief engineer for Abitibi Power & Paper Co., and resigned from that position last year. *T. A. BURTON* of St. Catharines, Ont., who is associated with Mr. Zimmerman on this project, was previously with H. G. Acres & Co., Niagara Falls.

LINCOLN R. THIESMEYER, Ph. D., has been appointed president of the Canadian Pulp and Paper Research Corp., which is supported jointly by McGill University at Montreal, the Canadian government and the Canadian Pulp and Paper Association. Brooklyn-born, Dr. Thiesmeyer has been executive assistant to the director of the Brookhaven National Laboratory, one of the chief atomic energy research centers in the U. S.

H. J. BURNS, manager of Sorg Pulp Co., Vancouver, has joined Powell River Co. as assistant comptroller. He took over Sorg management following death of General Manager Hugh Lewis and retained office until the company's affairs in British Columbia were wound up following shutdown of the mill at Port Mellon.

ARNOLD McQUARRIE has retired as assistant manager of mill stores, Powell River Co. to enter private business and has been succeeded by *CHARLES BROWN*, who will report direct to *WALTER BATTERHAM*.

PAUL LAPOINTE, forestry engineer for Anglo-Canadian Pulp & Paper Mills, and spare-time mayor of Forestville, Que., has returned from an extensive forest survey to the head of the Sault-au-Cochon and Bersinte rivers.

G. J. DIEDERICH, of the Swedish pulp mill, Mo-och-Domsjo, has gone to the west coast to direct installation of the chlorine dioxide process at Nanaimo Sulphate Pulp Ltd.'s new bleached sulfate pulp mill.

W. R. TIDMARSH, Woodpulp Machinery Co., Toronto, has returned from a trip to Norway and Sweden, where his company is installing three grinders, said to be the world's fastest—5260 f.p.m., producing 60 tons daily.

Farewell Party for Craig At Terrace Bay Mill

Terrace Bay, Ont., staged an impressive goodby party to Hamilton S. Craig, who had been manager and general manager there for LongLac Pulp & Paper Co. almost since the inception of the operation. "Ham" has taken over his new duties in Toronto as director of service operations for Kimberly-Clark's mills in Canada.

O. D. HALLIN, formerly with the Crown-Zellerbach timber department in Seattle, has been appointed manager of Pacific Mills, Ltd.'s timber department at Vancouver, B. C., and vice president of the subsidiary Northern Pulpwood, Ltd., and Badwater Towing Co.

M. J. FOLEY, executive vice president of Powell River Co., and *WILLIAM BARCLAY*, vice president, Powell River Sales Co., Vancouver, B. C., toured the east and southern states recently.

C. L. BARKER recently retired as vice president and general manager, Hudson Paper Co., Winnipeg, distributing subsidiary of Pacific Mills, Ltd., and at a banquet held in his honor was presented with an engraved bronze plaque by *PAUL E. COOPER*, president of Pacific Mills, and with other gifts from fellow employes by *LES WILLS*.

D. C. P. SNADERSON was honored recently on his retirement as electrical superintendent, Donnacona Paper Co., in Quebec.

PAUL E. COOPER, president of Pacific Mills, Ltd., Vancouver, B. C., was re-elected chairman of the western branch, Canadian Pulp and Paper Association, at its annual meeting recently. *HAROLD S. FOLEY*, president, Powell River Co., is vice chairman.

H. J. BURNS, formerly treasurer of Sorg Pulp Co., Vancouver, B. C., joined Powell River Co. as assistant controller at the beginning of this year. During the war years he was treasurer of Boeing Aircraft of Canada, Ltd.

WILLIAM S. HODGSON, formerly at board mill operations in Pt. Angeles, and with Wm. Thacker & Sons, engineers of Victoria, B.C., has now moved east to Toronto.

ROBERT F. RODGER is the new western manager of Rolland Paper Co., Montreal, with offices in Winnipeg.

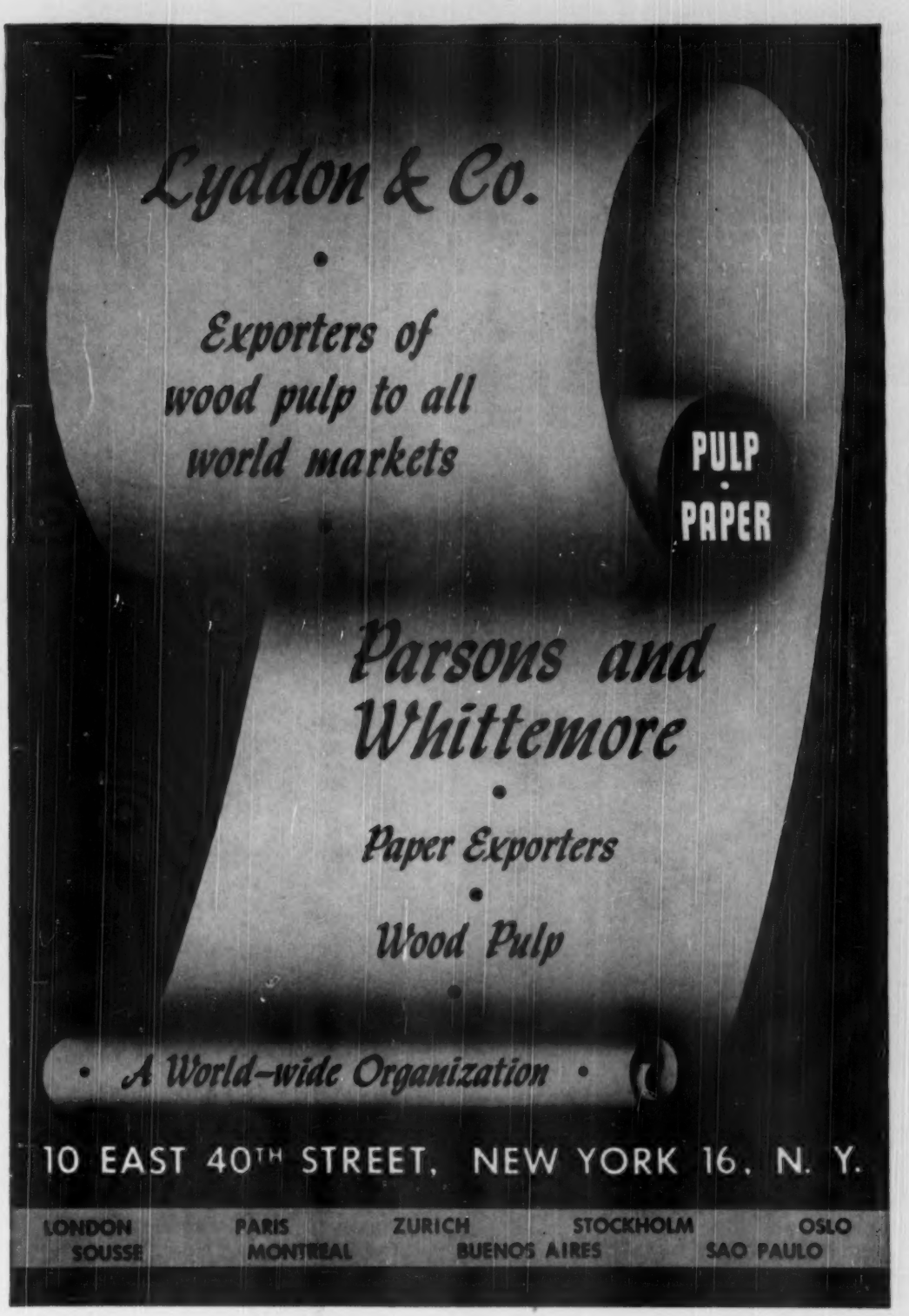
Mitchell Thom Moves On; Will Run Guatemala Mill

Mitchell Thom, former British Columbia and Mexico City mill superintendent, moved Feb. 1 to Guatemala to become manager of probably the only paper mill in the world on a farm. Owned by Minor Kielhauer, the mill is on a 9300-acre estate 35 miles west of Guatemala City, on which is also a sugar mill. Paper is made from citronella grass after oil is extracted and the paper mill and power plant is said to represent a $1,000,000 (U. S.) investment.

Mr. Thom was formerly manager of United Shoe and Leather Co.'s mill in Mexico City, where, he reports, his several years' effort in training crews and gradually improving equipment has been rewarded with a doubling of production in his department. He praised highly the intelligence of his crews.

"Our large machine is turning out 18 tons a day and our little old 2-cylinder machine is making 4½, and I finally got the old wet machines shut down."

Of his three daughters Dorothy is married to a Californian in Watsonville, Calif., and Joan has gone to live with her and finish high school. Shirley married a Mexico-born Anglo-Canadian, an ex-Canadian air force navigator.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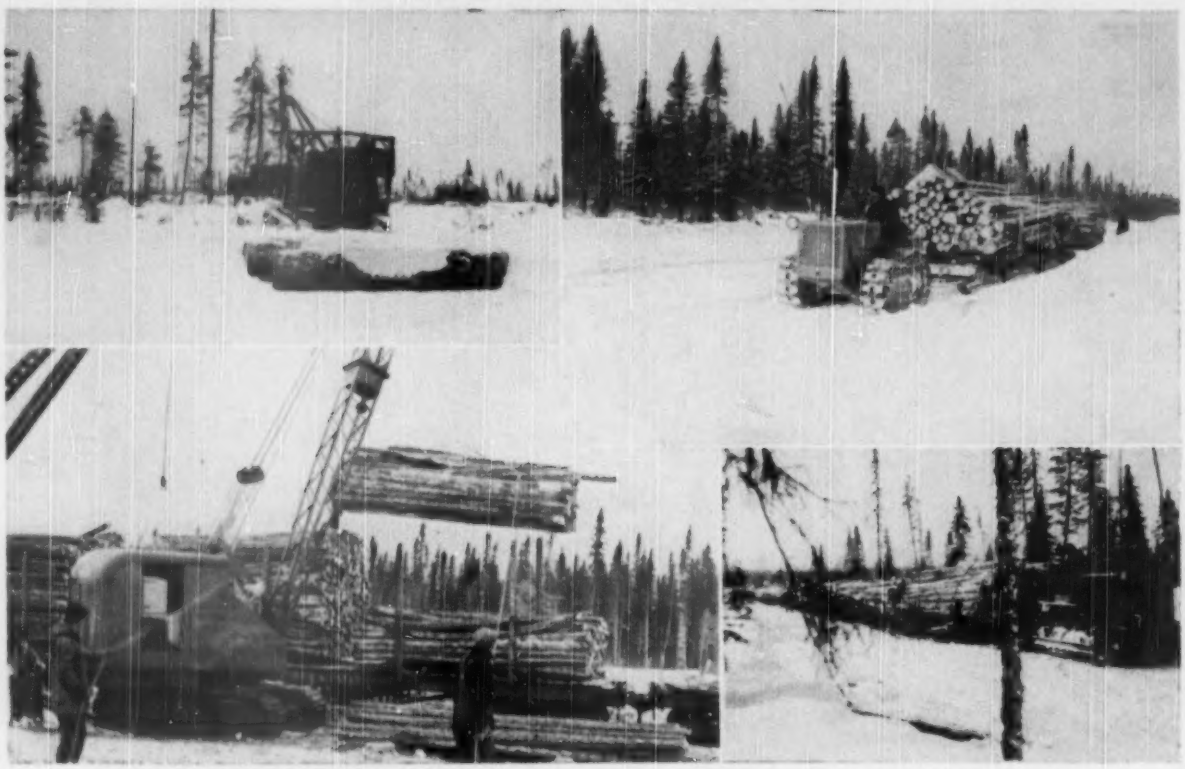
OSLO

The purchase of timberlands as a measure of protection for future operations has increased United States pulp company holdings by one-third during the last four years, the APPA reports.

LOGGING AT IROQUOIS FALLS

Mechanization Being Extended Gradually



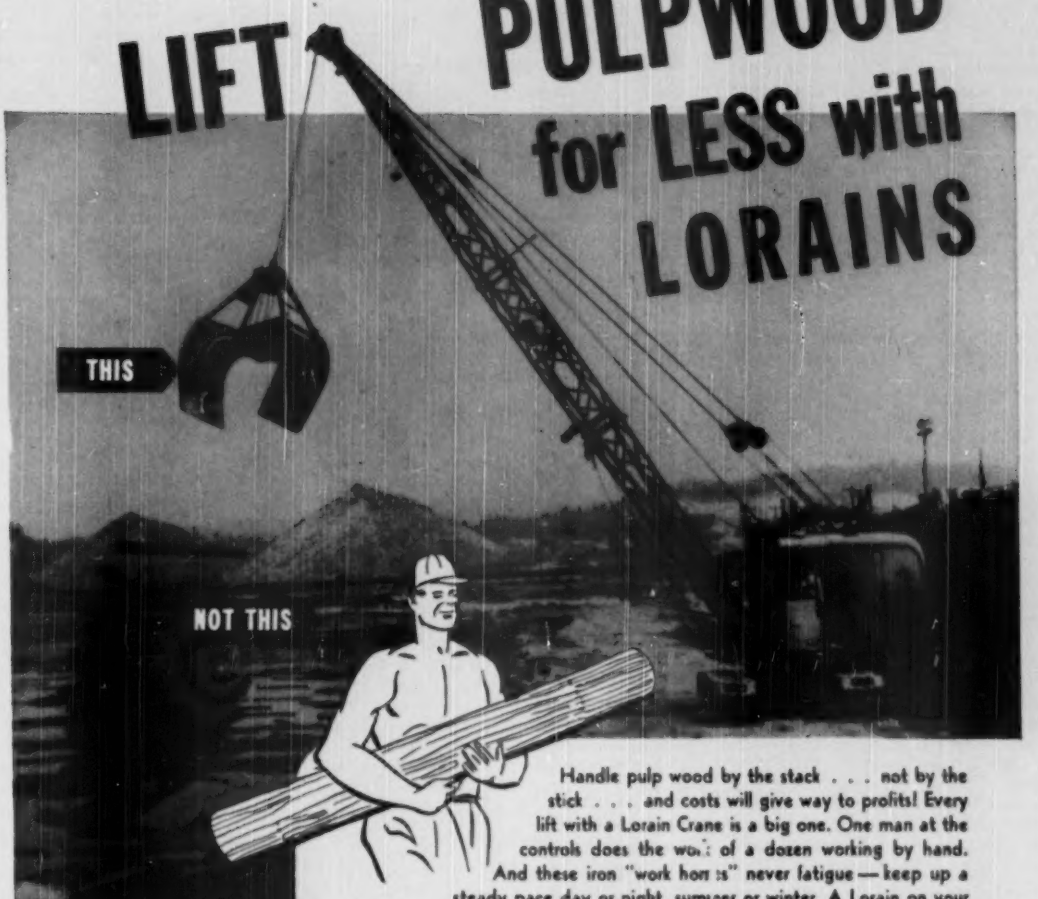
LOGGING OPERATIONS FOR IROQUOIS FALLS: Top left—Breaking strip roads for horses and smaller tractors. D-7 Caterpillar tractor is shown here pushing logs. About 440 miles of strip and main roads are broken out three times a season. Top, right—Sixteen-foot pulpwood being hauled by D-2 diesel Caterpillar tractor for Iroquois Falls division, Abitibi. Average load is six cords; length of haul two miles. Bottom, left—Browning crane Model B-1 equipped with 35-ft. boom powered by Caterpillar D-8800 engine loading 16-ft. pulpwood from sleighs on to railroad cars for Iroquois Falls. This unit handles 35 cords per hour and operates ten hours a day. Bottom, right—Hauling pulpwood with Caterpillar diesel D-6 and two D-4 tractors in tandem.

Preliminary to the initiation of a long-term forest management program at its various operations, mostly in the province of Ontario, Abitibi Power & Paper Co. has now virtually completed an inventory of its pulpwood resources.

The survey was initiated under President D. W. Ambridge's plan to ascertain the full potential of the various mills in the Abitibi group. Abitibi is one of the largest producers of pulp and paper in Canada, with eight mills and control of several subsidiaries such as Provincial Paper Ltd.

The original Abitibi mill is at Iroquois Falls, and progress is being made there to extend mechanization in the woods gradually. A significent step was taken by the Abitibi organization recently when C. R. Silversides, formerly a specialist in logging mechanization for the Canadian Pulp and Paper Association, was ap-

LIFT PULPWOOD for LESS with LORAINS

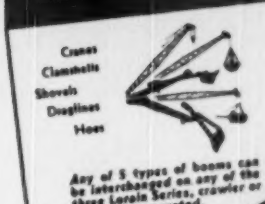


Paper in the making at the Marathon Paper Mills of Canada, Ltd., Port Arthur, Ontario, a Lorain-41 is shown casting 8 ft. pulpwood into the mill pond from cars.

Handle pulp wood by the stack . . . not by the stick . . . and costs will give way to profits! Every lift with a Lorain Crane is a big one. One man at the controls does the work of a dozen working by hand. And these iron "work horses" never fatigue — keep up a steady pace day or night, summer or winter. A Lorain on your job will work wonders in boosting production — saving time and man hours.

Then add all-round work uses with a Lorain and you'll have the formula for still greater profits. For these Lorains can be fitted for many jobs — with grapple (shown), clams, drags, hooks of all kinds, shovel or hoe booms — to keep busy on scores of jobs in any season. Ask your Lorain Distributor for recommendations!

THE THEW SHOVEL COMPANY, LORAIN, OHIO



Any of 5 types of booms can be interchanged on any of the three Lorain Series, crawler or rubber-tire mounted.

75 LORAINS FOR EVERY CLASS OF WORK

Lorains are also available on rubber-tire mountings to add travel speed to your lifting jobs. 2-engine Moto-Cranes (left) with speeds up to 33 m.p.h. or single-engine Self-Propelled models (right) with speeds up to 7 m.p.h. All in all there are 75 combinations of mountings, front end equipment and capacities.

SHOVELS — CRANES
DRAGLINES

THEW Lorain

CLAMSHELLS — HOES
MOTO-CRANES

pointed to Abitibi's woodlands division under Manager Clark B. Davis. It is Mr. Silversides' job to study the possibilities of machine application to the varied woods operations of the company.

T. H. Stone, woodlands manager for the Iroquois Falls division, told **PULP & PAPER** in his office recently that his organization will operate eleven wood camps this year, employing about 1800 men. The camps produce about 140,000 cords of 16-ft. wood a year, in addition to which the company purchases about 33,000 cords.

"We have been proceeding conservatively with the mechanization of our logging technique," stated Mr. Stone. "We have, however, been using tractors and trailers fairly extensively and at one camp near Eades we have been operating a Timberland (Woodstock, Ont.) yarder for the past two years and we may expand our cable yarding as results indicate. We are using power saws only to a limited extent."

In the operations near Eades, the company winter hauls about 50,000 cords per season by truck on an all-season road to boom storage on Lake Abitibi. The company has a fleet of 27 GMC trucks, mostly of 5 ton capacity, with sleighs and Dominion wheeled trailers.

The Iroquois Falls division also operates two tractor hauls, and they account for about 30,000 to 40,000 cords in a season. Most of the hauling is done by International 12-ton tractors, in addition to which there are several smaller Caterpillar and International tractors. There are 22 tractors altogether in service.

The general technique at Iroquois Falls is to carry on falling operations on the company's extensive limits surrounding Abitibi Lake, a shallow body of water that doesn't often exceed 10 feet in depth, and to either haul directly to the lake or drive some of the numerous small rivers that are tributary to it. The logs are collected in bag booms and towed to the mouth of the Abitibi River whence there is another short towing operation before the wood is driven the final distance to the mill pond.

In the winter months the company delivers about 40,000 cords over the company's own railroad of 33 miles of main line laid on 85 lbs. steel and ballasted, the tracks being standard gauge. Browning cranes Model B1 are sometimes used with a 55' boom, powered by Caterpillar D8800, to load 16' pulpwood onto the flat cars.

Several miles of spur line are operated, 56 lb. steel being spiked to tie logs under which stringers of logs are laid lengthwise. The spur line locomotive is an 85 ton Shay. The spur lines are generally moved every four or five years. The camp buildings are portable, being 17 ft. by 36 ft. a size which enables their transportation from one point to another on flat cars quite conveniently. They are shifted from one location to another every two or three years.

On the tractor haul during the winter season there are several variations in the hauling procedure. On a 10-mile haul from the bush cutting point to the dump on Abitibi Lake a Caterpillar D7 tractor pulls 24 sleighs, each carrying about 4 cords of pulpwood. The tractor makes two round trips in a 10-hour day. Another tractor, a D2, working on ice, unloads the sleighs on the dump at the lake. The same tractor is used in the summer months to carry supplies over the swampy country to the camps.

Description of Logging Methods

During the past two seasons the Iroquois Falls woods department has been carrying on experiments with a view to determining the relative merits of mechanical hauling and horse transportation of logs. According to Kenneth W. Carlisle, logging engineer for the company, the effect on reproduction is still speculative as insufficient time has been allowed for a thorough test.

However, Mr. Carlisle states that the effect on advance growth of mechanical hauling is not as severe as in horse logging in which a 25 foot horse road is cleared and the brush is piled between the roads. In the case of mechanical logging a road only 16 feet wide is used and the clearing is not as thorough.

"Taking the picture as a whole," stated Mr. Carlisle in a paper delivered recently, "it is not expected that the mechanical logging will do any more damage to advance growth that the present method of logging cut and bunch wood and the exposure of mineral soil by summer yarding may be an advantage as far as seed conditions are concerned."

The system of mechanical logging adopted at the Iroquois Falls division is the yarding of bunched wood. As more than 50% of the timber in the division can be "cut and bunched" by manual labor into piles of approximately one half a cord to a cord or more and the timber grows in a fairly even stand over relatively large areas, it was decided to attempt the yarding of these bunches by cable skidding into piles along the haul roads.

The traditional method of logging 16-ft. wood has been to cut and bunch the wood in piles along the side of a horse road which is broken by tractors in winter. The piles of bunched wood are then loaded by two men onto sleighs and forwarded to a power or horse jammer where the whole load of about two cords is transferred to trucks, sleighs, or semi-trailers for the main haul. Some of this wood may be piled down in stockpiles by the teamster and loader to be later loaded out by Browning crane using a grapple.

In the yarding of bunched wood, strips 500 feet long are blazed 50 feet wide which is similar to the standard method but the bunches are placed at right angles to the direction of the strip and in the center in such a manner that a wire rope choker can be placed around each end of the bunch. Using a winch with a main line and haulback these bunches are then yarded into a pile at the roadside from which they can be loaded by crawler crane onto the hauling equipment.

The yarder consists of a sled 32 feet long and ten feet wide, constructed of two timbers with a 16 inch top and cross members. On the front is mounted a 42 foot A frame which is held in position by four guy wires. The winch which is mounted at the rear is powered with a Chrysler T120 motor and has five drums equipped with brakes and operated independently by friction.

The main line drum which does the yarding carries half inch steel core wire rope and runs through the full block at the head of the A frame to the butt-rigging and chokers, the latter being made of 22 feet of 7/16 wire rope equipped with a Bardon hook and ferrule.

The second drum carries enough 7/16 inch wire rope to pass around a setting of about ten strips and is attached to a butt-rigging by a hook and chain. Light blocks are used at the corners of the setting to guide the haul-back line.

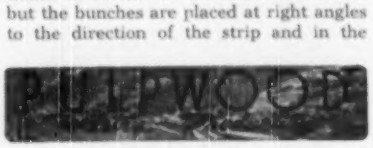
The third drum is the moving drum and carries about 1000 feet of 5/8 inch wire rope which is attached to a stump or stumps and moves the whole machine ahead from strip to strip. After each move the guy line which is mounted on a fourth drum is made fast to a stump about 125 feet to the right and then tightened to put the main line in lead. All yarding is done from the left and at right angles to the road and the machine. The fifth drum carries 1500 feet of strawline one quarter inch diameter which can be pulled by hand around the setting to pull in the other lines or set the rigging.

After moving to a strip the guy line is set. The strawline is then run out the strip to pull in the end of the haul-back line which is then hooked onto the butt rigging which in turn carries the chokers and is fast to the end of the main line. The haul-back then pulls the chokers out to the bunch and the chokers are passed around each end and made fast by the Bardon hook. The operator then winches in the bunch until it is in the pile at the side of the road where the chokers are unhooked and the haul-back returns them to the next bunch.

The costs are reported to be competitive with horse logging and the company's operation during the winter of 1948-49 showed a saving over the standard method.

Like most Abitibi executives, Woods Manager Stone has been with the company for a long time—actually 26 years. He was with the Smooth Rock division, to the northwest, for 13 years before going to Iroquois Falls in 1943.

C. W. R. Day is assistant woods manager, and T. Gibbens is the general superintendent.



— MEETINGS —

Southern Pulpwood Conservation Assoc.—Biltmore Hotel, Atlanta, Ga. ..... Feb. 15

Intermountain Logging Congress—Spokane, Wash. ..... Mar. 29-31

TALLEST LIVING TREE in the U .S. is a California coast redwood, 364 feet tall, located on North Dyerville Flat, Humbolt State Redwood Park, Calif.

More Logs.. Less Cost

with OLIVER "Cletrac"

■ Your logging operations will get a big lift with an Oliver "Cletrac" HG tractor and its twin aids to better logging . . . the hydraulic-drawbar and Imp Dozer.

The hydraulic drawbar cuts the cost of logging . . . helps you get out more logs per day. The operator drops the tongs over the logs, lifts the drawbar and skids out the load . . . without leaving his seat. Drawbar is lifted and lowered by easy-acting hydraulic controls. And, since the logs are skidded with the butt ends off the ground, the terrific resistance caused by the logs burying themselves as they are lugged is eliminated. The tractor can handle far bigger loads. Strains on the tractor are materially reduced, resulting in longer life and far less maintenance cost.

The Imp Dozer is the handiest little item you've ever seen. This hydraulically operated dozer builds trails, repairs roads, and pushes the logs into position at the deck or in the woods.

Why not have your Oliver Industrial Distributor give you the complete story. Or, if you prefer, write direct to The OLIVER Corporation, Industrial Division, 19300 Euclid Avenue, Cleveland 17, Ohio.

Cletrac

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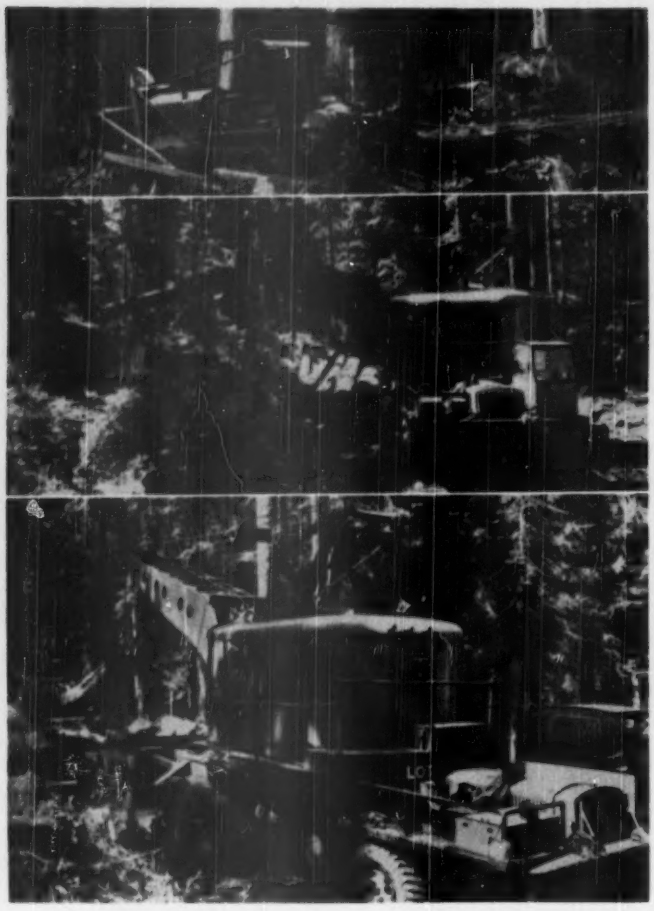
The OLIVER Corporation

A complete line of Crawler and Industrial Wheel Tractors

"THE SIGN OF EXTRA SERVICE"

USING FAST MOBILE LOADER



Pulp species logs for the Publishers Paper Co. of Oregon City, Ore., as well as sawlogs and peelers for other Oregon plants are being brought out of the Mt. Hood National Forest with the help of a new high speed mobile loader developed by Thew Shovel Co., of Lorain, O., and operators say it is doing a highly successful job economically.

This is one of the early tree-selection management sales of timber by the U. S. Forest Service in Oregon, and Brightwood Logging Co., of Brightwood, Ore., is bringing out the wood.

Last year logging was done by means of tractor skidding to landings where logs were loaded on trucks by conventional spar tree loader. But now a Thew Lorain rubber-tired Moto-Crane, 3-axle loader picks up the logs along the road and they are skidded in by two Cletrac tractors. The Moto-Crane loads them directly onto truck trailers.

Changing over to the Thew Lorain Moto-Crane eliminated concentration of skidding because of frequency of loading points, and kept skid roads short and little used, thus reducing cutting up of ground surface. The Lorain Moto-Crane kept four trucks in production on a 25-mile haul, even though a limited number of trees were being harvested per acre under the selection system.

Walter E. Koch, Jr., vice president and manager of the logging company, said the Thew Lorain Moto-Crane loader will put out 25 loads per day, using three or four trucks on 28-mile haul.

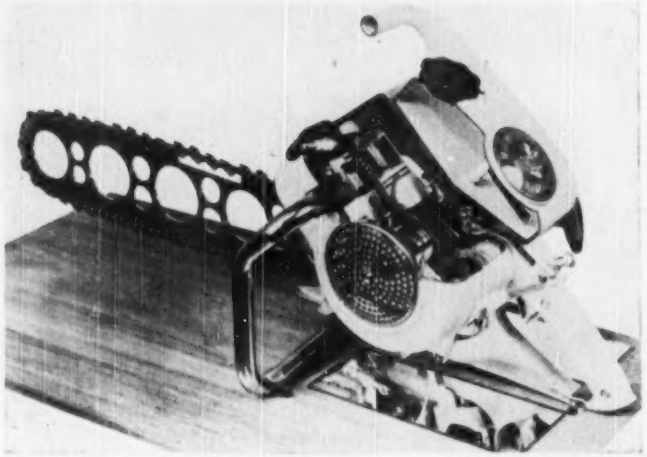
The Moto-Crane is equipped with Twin Disc hydraulic coupling and Twin Disc disengaging clutch and is powered with two Waukesha WAKD six-cylinder diesel engines, one powered the 12-tired undercarriage, and the other powering the crane. The unit has Timken-Detroit axles, with power delivered equally and separately to each rear axle by means of power divider. Rated capacity lift is 45 tons at 12-ft. radius. There are five forward traveling speeds, ranging from 1.75 to 18 m.p.h., and a reverse. Power and tractive characteristics are such as to enable negotiating a 28% grade.

PICTURES OF MT. HOOD LOGGING (at left) taken by PULP & PAPER: Top View—One of the two FDE diesel Cletrac tractors yarding to the loader. It is equipped with Pacific Car & Foundry Co. winch and Isaacson Iron Works bulldozer. Center View—Hot decking a log with MC-820 Thew Lorain Moto-Crane. Below—Loading logs onto truck trailer with Lorain Moto-Crane.

Of Interest to Firms Considering Re-Seeding

A new aid to forestation is available, a technical publication titled "Woody-Plant Seed Manual," which has been referred to as the definitive authority on production of seed for forest trees. This manual of 416 pages includes 444 species useful for forest plantings, farm woodlot plantings, shelter belts and cover for wildlife. For each species, information is given on distribution and use, seeding habits, collection, extraction, storage, germination and nursery field practices. The volume, known as "Miscellaneous Publication No. 654" sells for $2.75 and can be obtained from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

INTERNATIONAL PAPER CO. through its Southern Kraft Division has recently qualified 360,726 acres as "Tree Farm." Of this total, 22,347 acres were in Mississippi, 268,431 in North Carolina, and 69,948 in South Carolina.



AN EXTREMELY LIGHT-WEIGHT logger's chain saw has been announced by McCulloch Motors Corp. of Los Angeles. the new Model 3-25 McCulloch develops a full three horsepower, weighs under 25 pounds complete. This cutaway view shows compact, sturdy construction. Sectioned areas show: gas tank with all-position feed line; integrally-cast upper handle; deeply-finned die-cast aluminum cylinder; cast-iron liner; die-cast aluminum piston; forged crankshaft; automatic clutch; fuel-mixture adjustment arm; air filter, and fan housing and crankcase.

SOUNDVIEW

High Grade

BLEACHED
SULPHITE PULP

SOUNDVIEW PULP COMPANY
EVERETT WASHINGTON

Recreation Association
Innovation at Longview Fibre

A recent innovation at Longview Fibre Co. has been the formation of the Employees' Recreational Association. The purpose of this organization is to foster and support athletic and recreational activities for the employes of the Company and their families. Membership is open to all employes and 93% have joined. Dues are $1 per year. The Company matches every dollar. Other means of raising funds, such as dances, may be used.

The governing board follows: W. J. Shelton, management representative and chairman; Nate Johnson, K. M. Young, Maxine Smith, and Mike Martin representing unions; C. A. Davis, salaried employes, and A. O. Parson, secretary (ex-officio), and W. Q. Reiniger, treasurer (ex-officio).

Bonneville Power Brought To Olympic Peninsula Mills

A new $1,500,000—50,000 kva substation has been inaugurated at Port Angeles on the Olympic Peninsula extending the government's Bonneville power lines from the Columbia River to that area and thus providing an additional source of power for Rayonier, Crown Zellerbach and Fibreboard mills at Port Angeles and Crown Zellerbach's Port Townsend mill. An old transmission line wheels Bonneville power to Port Townsend.

Another new substation is going in at Shelton where Rayonier and Simpson mills will be served. These extensions greatly stiffen up the power system in areas where there had been generally weak lines and inadequate transformation.

U. S., state and local officials ceremoniously opened the Port Angeles substation, end of a new 115,000-volt line from Olympia. Distribution to the mills is made at 66,000 volts. Westinghouse Electric Corp. supplied transformer equipment for the systems. Important changes in power distribution circuits had to be made at the mills and Westinghouse supplied equipment and new telemetering systems for the mills.

On the very day of his retirement as manager of Crown Zellerbach's Central Engineering which he headed 26 years, E. H. Vicary was on hand to give one of the main addresses. He predicted there would never be a surplus of power in the Northwest.

"We now have a pipeline which reaches back to the heart of the power pool, but that pipeline won't be filled for quite a while," said the C-Z man who has done so much for power development on the peninsula over may years.

Mileage and Mills

There are six mills on the peninsula, the Port Angeles, Shelton and Hoquiam divisions of Rayonier, the big Crown Z newsprint mill at Port Angeles, and Crown's kraft mill and bag plant at Port Townsend, Simpson Logging's insulating board plant at Shelton, and Fibreboard's sulfite pulp and board mill at Port Angeles. All of these companies have woods operations on the peninsula where new forestry thinning and husbandry techniques are being tested.

The Hoquiam mill is about 160 miles northwest of Portland and from there one can go around the famous Loop highway, partly through Olympic National Forest and Park to the other mills, to Port Angeles, Port Townsend and Shelton in that order. The Shelton mill is about 160 miles north from Portland via Olympia and from there the tour of mills could be reversed. There are several other alternate routes, one being to Seattle, Everett and east Puget Sound mills, then crossing by ferry from Edmonds, 20 miles north of Seattle, to Port Ludlow, which is only about 20 miles from Port Townsend and 45 miles from Port Angeles. There is an overnight ferry from Seattle to Port Angeles, which by motor is 290 miles from Portland. There is no passenger railroad service to Peninsula points but there are planes, buses and boats.

COMING INDUSTRY MEETINGS

National

Amer. Institute of Graphic Arts—Architectural League, New York City ..... Feb. 6

Amer. Pulp & Paper Ass'n (Annual Meeting) — Waldorf-Astoria, New York City ..... Feb. 19-24

Nat'l Council for Stream Improvement (Annual Meeting) — Waldorf-Astoria, N.Y.C. ..... Feb. 20-22

Tech. Ass'n Convention — Commodore Hotel, N.Y.C. ..... Feb. 19-24

Nat'l Paper Trade Ass'n. (Annual Meeting) — Waldorf-Astoria, New York City ..... March 27-29

Nat'l Packaging Exposition—Navy Pier, Chicago ..... April 24-27

Joint U. S.-Canada Fundamental Research Conf.—Chateau Frontenac, Que. ..... May 29-30

Supts'. Ass'n (Nat'l Meeting) — Edgewater Beach Hotel, Chicago ..... June 8-10

Paper & Twine Ass'n. (Annual Meeting) — French Lick Springs Hotel, French Lick Springs, Ind. ..... June 16-17

Envelope Mfrs. Ass'n. — Greenbriar Hotel, White Sulphur Springs, W. Va. ..... July 10-11

Educational Graphic Arts Exposition—Chicago ..... Sept. 11-23

Allied Industries' Luncheon Club—Second Monday of month, 12 noon, Commodore Hotel, New York.

Regional

Pacific Coast Engineering Meeting—Everett, Wash. ..... Feb. 7

Ohio Tech. Section — Manchester Hotel, Middletown, O. ..... Feb. 9

So. Pulpwood Conservation Ass'n— ..... Feb. 15

Lake Erie Papermakers & Converters Ass'n.—Hickory Grill, Cleveland, Ohio ..... Feb. 17

Lake States Technical Committee, Amer. Pulpwood Assoc. — King's Gateway, Land O' Lakes, Mich. ..... May 3

Canadian Tech. Section — Chateau Frontenac, Que. ..... May 31-June 2

Amer. Forest Products Society — Portland, Ore. ..... June 25-29

Paper Industry Salesmen—Midston House, New York City—Every Monday, 12 noon to 2 p.m.

One of the Men behind Eastwood Wires

Robert Zimmerman

"Seaming-ly" at Work

The supervisor of our seaming department is shown operating a brazing machine across a fourdrinier wire, the ends of which previously had been prepared.

Under microscopic control, this machine brazes a fine, strong, uniform seam that probably will outlast the rest of the wire.

Seams once made by hand were a major source of complaints. Today—because of the brazing machine developed by the Eastwood organization—seam troubles have been largely eliminated.

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You Can't Have Good Paper

Without Good Chemicals . . .

ALUMINUM SULFATE

Standard: Lump; Ground, 99% thru 8 mesh, 95% thru 10 mesh; Powdered, 95% thru 100 mesh.

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SODIUM SULFATE

(Salt Cake) . . . Paper Makers' Grade, thru 8 mesh, 95-99% Na_2SO_4.

Chemicals are vital in the manufacture of paper. You can't have good paper without them. That is why particular paper makers, when ordering alum, salt cake and other process chemicals, make sure of quality and *specify "General Chemical."*

Other General Chemical Products For the Paper Industry

- Aqua Ammonia
- Chromium Potassium Sulfate (Potash Chrome Alum)
- Disodium Phosphate (Anhydrous)
- Glauber's Salt (Crystal and Anhydrous)
- Hydrochloric Acid (Muriatic)
- Nitric Acid
- Sodium Bisulfite (Anhydrous)
- Sodium Fluoride
- Sodium Hyposulfite
- Sodium Metasilicate
- Sodium Silicate
- Sodium Sulfide
- Sodium Sulfite (Anhydrous)
- Sodium Thiosulfate
- Sulfuric Acid
- Tetrasodium Pyrophosphate (Anhydrous)
- Trisodium Phosphate

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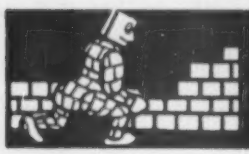
THOROUGH KNOWLEDGE OF THE THEORY AND PRACTICE OF LININGS HAS PRODUCED INCREASED REVENUES FOR PULP MILLS

NEW processes and improved operation in pulp manufacture is largely dependent upon the ability of the linings of the various vessels, tanks, chests, etc., to permit of long time dependable service.

Stebbins has pioneered the linings used in the leading pulp cooking processes:

Calcium Base
Ammonium Base
Magnesium Base

The correct lining is one of the best investments you can make when rebuilding or installing new digesters, chests, tanks, accumulators, etc., in a pulp mill. Dependable operation pays dividends year after year.



SEMCO

Stebbins Engineering Corporation

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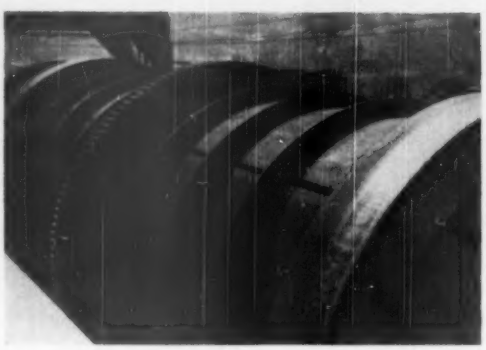
The Carthage 360 Barking Drum



Here is an all welded drum built like a one piece tube instead of having parts to be knocked loose one by one. Here is a shell built of six 1⅛" rolled steel plates weighing 12,000 pounds each and running full length — a shell weighing about three times as much as the wood it contains.

There are only eight bearings in the chassis.

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MILL MAN: Top side, of course.

BUYER: Which is top side? I don't see much difference.

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BUYER: This is the board I'm looking for. It will keep our inks from offsetting in the high-speed printing and folding machines.

MILL MAN: I'll enter your order for a carload at once. You'll want more.

• *From the thinnest tissue to the heaviest board there are Hamilton Felts that will give all your sheets a finer finish at lower cost.*

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Saran rubber can be applied easily, effectively and economically by experienced tank lining applicators located strategically throughout the country.

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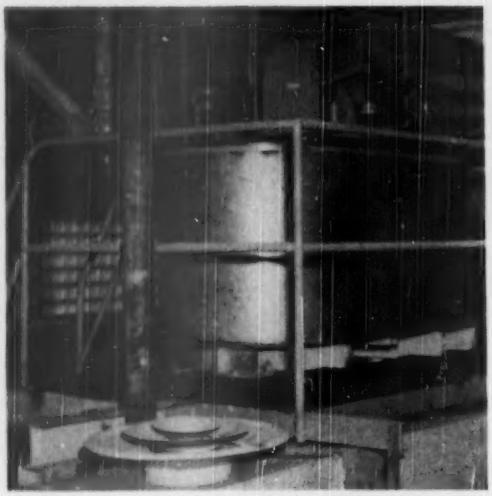
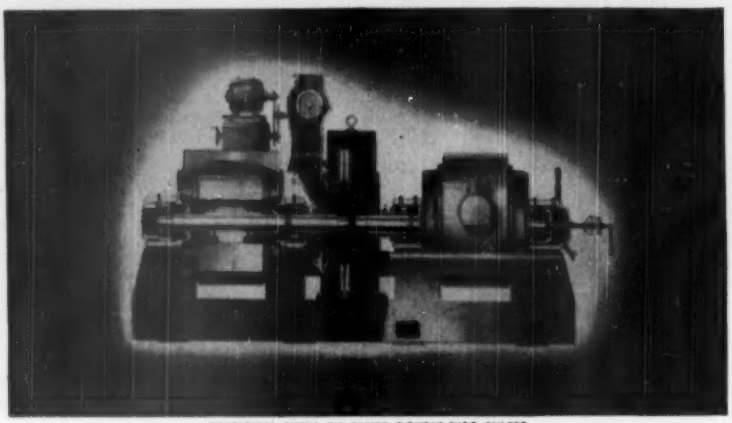


Uniformity begins with consistency. C-E Consistency Controllers are a requisite "first step" for they will maintain stock density within 1/10 of 1% at any setting from 2% to 6%. These units, which can be supplied with a stainless steel stuff box as pictured at Camas, are simple to adjust, easy to install and mechanically trouble-free.

Pacific Coast Supply Company

SAN FRANCISCO • PORTLAND



SECTIONAL VIEW OF BAUER DOUBLE-DISC PULPER

Bauer

PULPER

PRODUCES LONG FIBERS

The Bauer machine makes a desirable pulp for liner because it brushes and works upon the diameter of the fiber rather its length.

This quotation is from an article describing the equipment in a pulp and board mill. It emphasizes a characteristic of the Bauer Pulper; viz., the production of long fibers.

Bauer Pulpers are used for processing raw, steamed, and cooked chips from soft and hard woods; groundwood rejects; sulphite and soda pulps; kraft knotter and screen rejects; waste paper of all kinds; bagasse, licorice root, and bamboo fibers; straw and many other agricultural residues.

Ask for complete information. If you have special pulping and refining problems, you are invited to utilize our laboratory facilities.

The BAUER BROS. CO., Springfield, Ohio

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BABCOCK & WILCOX Direct Fired Boilers

FOR WOOD AND OIL

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Cochrane Catalog Combines Data

A new 24-page publication on Cochrane C-B system of Condensate Drainage Control has 6 pages of technical discussion of this unique system of high pressure, high temperature condensate return, followed by specifications of the two types of C-B unit, after which are detailed fifty-seven case histories and testimonials. Publication No. 3250 is issued by Cochrane Corp., 17th St. and Allegheny Ave., Philadelphia 32, Pa. In Canada, address Canadian General Electric Co., Ltd., 212 King St. W., Toronto, Ont.

Appliance Company Elects Directors and Officers

Elected to the board of Paper and Industrial Appliances, Inc., New York, at a recent meeting were J. B. Beveridge, Audenried Whittemore and L. G. Durant. Officers elected were Mr. Whittemore, president, succeeding the late R. D. Kehoe; Mr. Durant, vice president; Gudrum Scheffler, secretary, and M. S. Kehoe, treasurer.

Mr. Whittemore was formerly treasurer in charge of purchasing and manufacturing. Mr. Durant continues in charge of sales, engineering and research. Mr. Beveridge, co-inventor of the Chemipulper with the late R. D. Kehoe, will be consultant.

New Warren 2-Stage Pump Is Announced

Warren Steam Pump Co., Inc., Warren, Mass., manufacturers of centrifugal pumps exclusively, announce a new two-stage pump, Type TL, available in various sizes. This new line embodies the most modern features of multi-stage design and engineering. Capacities to 825 gpm. Bulletin 246 describes these pumps in detail and is gladly mailed on request.

Stone & Webster Man Honored on Safety Trophy

A Stone & Webster Engineering Corp. safety trophy for the company project having the best safety record of the year has been inaugurated at a recent dinner in Boston honoring retired Vice President William N. Patten, who joined the company 50 years ago. The trophy bears his name because of his interest in safety and will go each year to the Stone & Webster construction project with the best safety record.

Mr. Patten has taken a leading part in construction work in Massachusetts, Pennsylvania, Indiana, Washington, Virginia, Louisiana, District of Columbia, and elsewhere, altogether comprising in the power field 2,000,000 kilowatts of steam generated capacity and 1,000,000 kilowatts of hydroelectric capacity. He has also been responsible for construction of many industrial and chemical plants.

"The Dorr Way"

Industry men will be seeing in 1950 a most interesting industrial film. Called "The Dorr Way," it is a 33-minute film which has been given a number of pre-views in New York City. It tells the story of a man, Dr. V. N. Dorr; an idea—thae "mechanistic" treatment of finely divided solids suspended in liquids; and an organization, The Dorr Company and its associated companies throughout the world.

The picture was directed by Nell Dorr, whose book of photographs "In a Blue Moon" is now a collector's item. Photography was by Erica Anderson, well known for her work for other companies.

Heppenstall's John Roche Heads Knife Association

John P. Roche, vice-president of Heppenstall Co., Pittsburgh, is the new president of the Machine Knife Association.

A. O. Smith Bulletin

A. O. Smith Corp, Milwaukee, Wis., has issued a new, illustrated bulletin on the manufacture and assembly of A. O. Smith Multi-Layer Vessels. It is the first of a series which will give a complete Multi-Layer presentation.

(Continued from page 78)

method does not seem to be fully ready for big-plant installation. Evaporation is workable for the sulfite industry, if not wholly effective in reducing all mill liquor to condense solids. But burning presents a big question mark.

Rosenblad Evaporator Okay on Strong Liquor

Investigations in Sweden and observations at Interlake have proved that the Rosenblad evaporation system works on strong liquor.

The two main technical faults in evaporating has been overcome. Corrosion has been licked by the use of stainless steels. Scaling has been reduced to no problem by the Rosenblad method. A plate design heater is used. Scale is allowed to form naturally and then removed by switching the directions of the steam and the liquor in the channels, while the evaporation process goes on continously.

A feasible evaporation operation requires the collection of a fairly concentrated liquor from the mill. This means collection straight from the digester and no diluted solutions from other mill operations like washing.

Known results from tries at evaporation indicate that approximately 45% of a mill's dissolved solids present an average that can be diverted to evaporators.

The Interlake evaporator is turning out hundreds of gallons of condensed liquor that runs 50 to 55% of solids. Rule of thumb in evaporation seems to prevail; a pound of steam for a pound of liquor. We saw one barrel of the liquor, about the thickness of soft tar, that tested 75% solids.

Burning the Evaporated Product

Burning sulfite liquor effectively, economically and without fly-ash pollution is far from solved. Sweden has lagged far behind evaporation when it comes to burning, it was learned.

Swedish engineers are working on the problem. The Wisconsin mills have called on American boiler and combustion engineers to make an attack on the burning problem. Some of the leading U. S. firms are now working on solutions in their research laboratories.

One of the purposes of operation of the Interlake plant is to provide a source of condensed sulfite liquor for burning experimentation.

A WISCONSIN KRAFT MILL PLAN

The State of Wisconsin has been asked to agree to a program whereby Thilmany Pulp & Paper Co., a kraft mill, would tie a portion of its pulp mill waste into the City of Kaukauna's sewage disposal plant and run trials during 1950 to determine whether such treatment is practical. The City of Kaukauna has agreed to full cooperation in the proposed experiment. It is not known whether the plan is economically sound.

The city's plant was designed as a chemical flocculating plant and with ample capacity, with the thought in mind that Thilmany waste might be treated there.

Most of the Thilmany mill's sanitary sewers are already tied into the disposal plant. Difficut solid rock excavation has temporarily delayed re-location of all the mill's sanitary sewers. Thilmany is re-equipping all of its machines with modern savealls. Two glassine machines remain to be so equipped. This three-point program is expected to gain approval of the state pollution committee.

The concentrate does have a high BTU content. But so far, standard type boilers require too much auxiliary fuel to burn off the liquor and other serious problems are concurrently created.

The Yeast Method

The remarks of Henry A. Rothchild, technical director at Kimberly-Clark, at the Green Bay hearing, explained the yeast plant operation at Rhinelander.

"We had thought that the yeast process could reduce the total BOD from the waste sulfite liquor in the digesters by 70% to 75%. This has not been demonstrated by actual operation. Results show an average removal equal to 52%. The maximum recovery possible with spruce wood, we believe, is 85%, leaving 15% to escape to the stream. On this basis, a mill could effect a maximum reduction in the total BOD load of 52.2% of 85% or approximately 44%."

Comparisons of Methods

The actual operating problems and results to be obtained in a full-scale use of the evaporating system are somewhat undetermined. It appears that Wisconsin mills could expect to immediately reduce the total BOD load in the streams to approximately 55%. This is far below the first goal of the conservationists of 70%.

In round figures, it is believed that either system could reduce the pollution by one-half the existing conditions. This will require, of course, that yeast, or condensed liquor, be disposed of elsewhere.

What Will the Cost Be?

Every mill has a different problem. There are many cost factors that will be expanded upon in this article. Snap estimates say that mills of 100 to 150 tons capacity will spend between $1 million and $2 million on the installations.

Some private engineers, familiar with the pulp field, told **PULP & PAPER** that the cost of an evaporation system will run as high as $20,000 per-ton-mill. Confronted with this figure, some of the League members felt this might be a little high, but an estimate figure that might apply to some of the mills before they are through.

A yeast plant will probably be cheaper to install but is frought with all the problems of marketing stock feed at no great loss.

Economics of Wood

It seems obvious that private industry, in adopting one of these systems, will have to have the ability to pay for the installation and the means to operate it at a figure that will not put too high a price on its pulp. These dollars and cents factors are highly important predications in the solving of the problem.

But there is another point in the economics. It is one of raw wood supply. Any mill that has a desire to stay in business at any reasonable cost for installing abatement equipment, must first look to a continuing wood supply within reasonable proximity.

There are 11 member companies in the Sulfite Pulp Manufacturers Research League. They operate 14 mills. One company is in Michigan the rest in Wisconsin.

In ten years the league has spent $650,000 from its contributed coffers in this research. Nearly $50,000 has gone into the pilot evaporator plant.

Each of the 11 members has a different problem in reaching a decision of whether or not it can afford to make huge expenditures to comply with the state's pollution requirements. The League's scope of activity is research and development only and it does not recommend to its members. The companies must engineer and decide their own course.

The importance of wood supply, and the importance of its own pulp supply to an integrator is reflected in the statements of the four mills that requested time extensions at Green Bay.

"We definitely desire to continue our sulfite mill operation," stated Mr. Conway. "We are fortunate in being able to use poplar pulpwood to the extent of over 50% of our requirements."

Milan Boex, president of Northern Paper Mills, Green Bay, Wis., stated that if allowed an additional year's time, which will permit its engineers to proceed with preparation of detailed designs, plans and specifications for a practicable job of reducing the pollution contained in spent sulfite liquor, the company would proceed with the preparation of such plans within 1950 at an estimated cost of approximately $50,000.

"We intensely dislike to even think in terms

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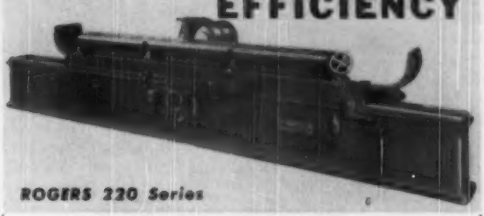

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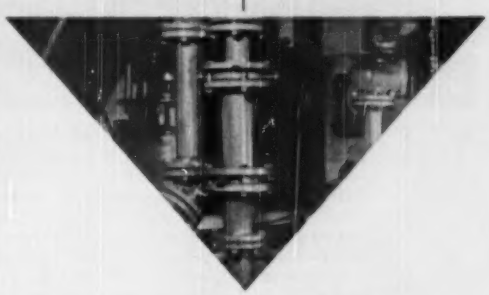

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of closing down our pulp operation," said Mr. Boes.

By contrast with the Hoberg and Northern statements, the remarks by Leonard E. Smith, manager Interlake Div., Consolidated Water Power and Paper Co., reflect the variety of problems that exist in different mills.

After discussing the major problems still facing any mill that might immediately adopt either the yeast or the evaporate-and-burn system, Mr. Smith said: "To build either kind of treatment plant would require an investment greater than the value of the Interlake mill . . . we have certain individual problems that confront us that are separate and apart from other mills and which are basic to our operation."

He explained that Interlake division is the only non-integrated pulp mill in Wisconsin and it needs a cheap, available supply of wood. In a long-term view of the Canadian situation, the low yield from the Northern Wisconsin areas and the prohibitive distances to other U. S. sections where spruce might be available, Mr. Smith told how his firm had not felt warranted in expending substantial money toward the replacement of old equipment and the purchase of modern machinery.

Mr. Rothchild, of Kimberly-Clark, reviewed known data and detriments in existing systems of eliminating sulfite liquor stream pollution and then stated:

"The management of Kimberly-Clark, after serious consideration, does not feel justified in authorizing the adoption of the process at this time. They feel it would be preferable to achieve an equivalent result by a curtailment of the sulfite pulp operations at our Kimberly mill."

Ohio Meeting Hears Of Pollution Regulation

F. H. Waring, chief engineer, Ohio Department of Health, discussed the "Legal Phases of Water Pollution Control in Ohio" before a record attendance of 144 members and guests at one of the outstanding Ohio technical meetings of the year at the Manchester Hotel, Middletown, O., Dec. 8.

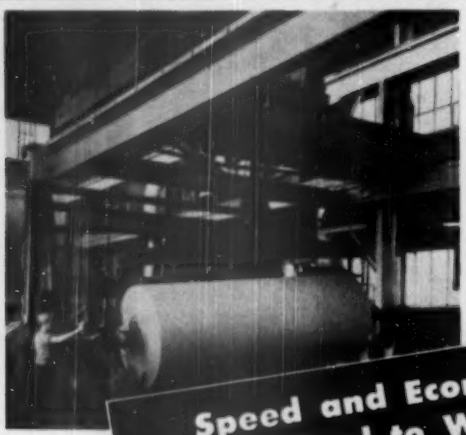
The Health Department's mobile laboratory was in Middletown and open for inspection. George Manos, chemist in charge of the mobile unit and his assistant, David Stewart, explained to the visitors the chemical and sanitary analysis they were able to conduct and their significance in pollution control.

Malcove Tells About His Trip to Sweden

N. L. Malcove, technical director of the Northern Paper Mills, Green Bay, Wis., told of his recent trip to the Scandinavian countries in which he visited a number of paper mills, at the Lake States technical meeting in Appleton, Wis., Jan. 10. A report of this trip was published on page 36, Jan. issue of **PULP & PAPER**.

Shibley Committee

The 1950 Shibley Award contest committee is seeking papers by young mill men. Thus far three are assured. Harold C. Wall, Longview Fibre Co., is chairman of the Shibley committee with Ed Nunn, Crown Z., West Linn; Gray King, Puget Sound Pulp, and Peter Taranoff, St. Helens Pulp & Paper, as committee members. The contest will be held Apr. 7 at Camas.



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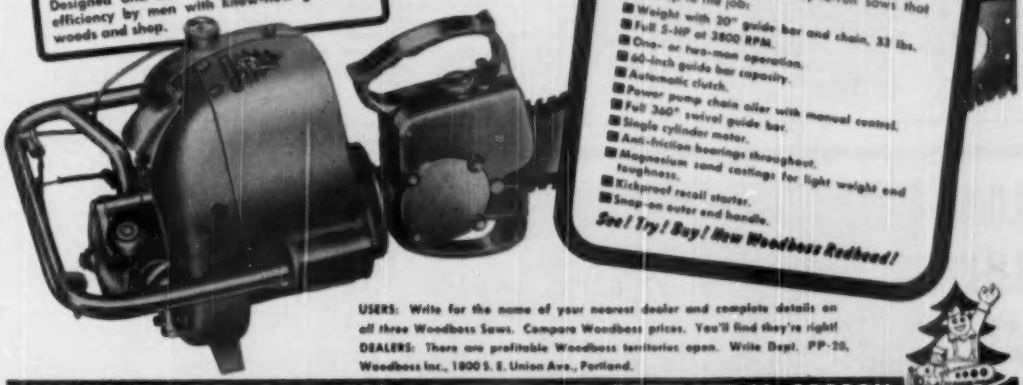

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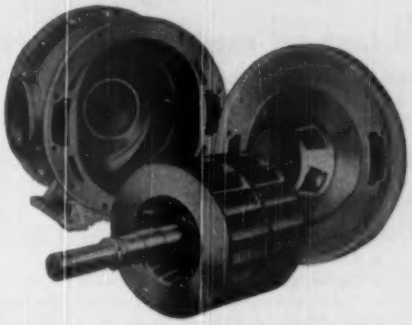

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MACHINE POSSIBILITIES

By J. E. Goodwillie

(Continued from page 27)

of approximately this length are now producing nearly 3.5 tons per day per inch of wire width, running at speeds within a few hundred feet of maximum newsprint machine speed. Also, that the newsprint machine production is now in the neighborhood of 1 ton per day per inch wire width. The wire length selected for any machine must obviously take into account the freeness of stock to be run, weight of sheet and other factors, but it does appear that the length of Fourdrinier wire need not impose a limitation on machine speed, at least not for some time to come.

Suction Couches

Some of the most interesting problems in high speed Fourdrinier operation must be solved at the couch end of the Fourdrinier wire. Here, in a very short space, we have the final dewatering of the sheet by high vacuum application and the removal of the formed sheet from the wire. Successful high speed operation depends upon effective separation of water, wire and sheet, with minimum tension or strain in the early formed sheet. In order to appreciate the difficulty of this separation on high speed machines, we can consider the fact that some of the newsprint machines of three roll width are consuming 1000 h.p. in batteries of vacuum pumps serving their couches. This investment in power and vacuum pump equipment is not being made primarily in the interest of a drier sheet to the first press, because the 2% or 3% increase in dryness could be obtained much more economically in the press section. The investment is being made to secure a "harder" or safer draw from wire to press felt, with consequent improvement in machine operating efficiency. The gain in efficiency evidently justifies the means, but it would seem that there must be some more economical approach to this problem. It would also appear that we must be in a zone of diminishing returns from application of vacuum power alone and that a real limitation to further speed increases may be encountered at this position in the machine unless a different and better approach to the problem is found.

While the nature of this discussion does not permit of much elaboration, we should like to mention that there are two main divisions in the problems encountered. First, there is the matter of complete separation of water removed by the suction couch and here the difficulty is that a conventional suction couch arrangement calls for removal of the sheet from the wire at the end of the vacuum area and at precisely the same point where water tends to throw from the roll back into the sheet. In a number of recent machine installations two separate couch rolls have been used, the first or primary couch being employed to do part of the work normally handled by the flat boxes as well as removing the bulk of the water that can be drawn from the sheet by vacuum action alone. Since the sheet remains on the Fourdrinier wire as it leaves the primary couch, the vacuum box in the primary can be set in a manner to control positively the throw of water, with the result that this water is all delivered into a saveall positioned around the primary couch. The sheet is then removed from the wire after it has passed the main suction couch with its subsequent vacuum action, and experience with this two couch arrangement indicates safer operation due to the fact that a great majority of the water handled was safely removed at the primary couch. Experience gained with primary couch installations then led to arrangements for certain types of sheets in which the sheet is removed from the run of the Fourdrinier wire after it has passed the primary couch position but before it reaches the main position. We mention these steps in development in order to illustrate procedure for dealing with the matter of properly handling water removed from the sheet at the couch.

Press Section

Even with effective water separation, higher speed operation on the lighter weight sheets impose a relatively high stress in the newly formed sheet at the point where it is stripped from the wire. This has brought us to a consideration of means for automatic transfer of the sheet from the Fourdrinier wire to the first press. In this connection, we feel that conventional use of the top pick-up felt is not good enough, because the action of this pick-up felt depends upon running a fairly high moisture content in the felt and also upon limited water removal from the sheet on the wire to a point such that the sheet will seal to the wet pick-up felt at the point of contact. These factors mean that the first press must carry abnormally high water removal duty, has some effect upon the strength characteristics of the resulting sheet, and is generally not desirable for anything except tissue grades. Various types of transfer arrangements not requiring the wet pick-up felt have been experimented with and placed in actual operation both in this country and abroad. Progress to date has been sufficient to make us feel sure that automatic transfer will be used on high speed machines in the not distant future.

As machine speeds increase, the press section equipment needs improvement. Obviously, the suction press must supplant the plain press for higher speeds, but even the suction press has its water removing ability affected by speed; without other changes, increases in speed tend to send a wetter sheet to the dryer section and this is not only wasteful from the standpoint of steam usage, but usually results in impaired sheet characteristics. Higher nip pressures tend to offset the effect of speed increases, and where operating conditions permit, this is an ideal means to the end. The alternative is to employ an additional suction press, that is, the installation of a suction second press where only one had previously been used, and a suction third press where two (2) had previously been used.

Modern press section equipment can be counted on to operate with high degrees of efficiency and when properly installed, should not impose any speed limitation.

Dryer Section

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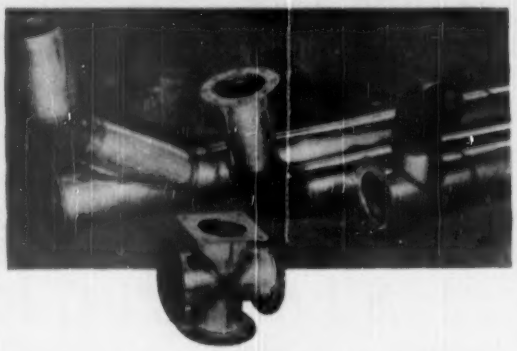

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DR. EDWIN SUTERMEISTER, Research Chemist for past 30 years at S. D. Warren Co., Cumberland Mills, Me., was a lecturer at U. of Maine's Paper Technology course. He gave general history of paper testing from ancient to modern times.

RAY F. WIMER (left) and CARLTON F. GOUDGE (right), are Gladding-McBean salesmen in the Pacific Northwest. Mr. Wimer, who has been with the company for several years, is in the Portland, Ore., area; Mr. Goudge, a Univ. of Washington graduate, was transferred to the Seattle area in 1947.

ROWLAND A. GALE, Sales Manager, Industrial Division of Pillsbury Mills, Inc., covers Eastern mills for that company from his headquarters, 476 Hawthorne St., Yonkers, N. Y. Pillsbury makes pre-measured Amylose Units.

PIONEER RUBBER MILLS announces the appointment of JOHN H. HANNA (left), as Manager of the Engineering Dept. in Pittsburg, Calif. After his discharge from the Navy as Engineering Officer on an A.P.A. in 1946, Mr. Hanna was with Bechtel Corp., where he was responsible for design of refinery and petroleum processing plants.

RICHARD A. CLAUSSEN (right), has been appointed Technical Supt. of the Pittsburg, Calif., factory of Pioneer Rubber Mills. Mr. Claussen graduated as a chemical engineer from University of Michigan in 1927 and received his M.S. from the University of Iowa. From 1934 to 1945 he worked for Goodyear Tire & Rubber Co. In 1945 he transferred to General Tire & Rubber Co. of Wabash, Ind.

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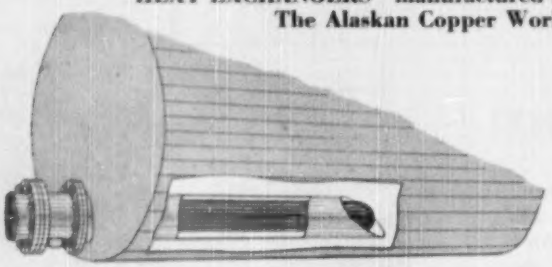
Butterworth Calender Rolls

Third in a series of illustrations showing types of "HEAT EXCHANGERS" manufactured by The Alaskan Copper Works



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doctor arangements, all contribute to operating efficiency, and the ventilating equipment has a direct bearing on the capacity of the section, but the number of dryers is still the dominating factor. For slower types of stock and specialty sheets, we are limited to comparatively low dryer temperatures if the best characteristics are to be retained in the finished paper, and for these types we must install longer dryer sections in order to develop the highest production possibilities.

On the freer types of stock and easier drying sheets, the use of higher steam pressure has been very effective. Operating steam pressures in the neighborhood of 100% gauge are becoming common, having been made possible by many improvements in machine design; the use of high tension iron for dryer shells and heads, the development of condensate removal equipment suitable for both high pressure and high speed operation, and very careful attention to heat insulation and lubrication for the dryer bearings. High pressure dryer operation with the attendant high temperatures, has introduced problems in that these temperatures tend to cause dryer shells to go out of round. It is therefore most important that the dryers not only be safe for operation at the higher temperature levels, but also that they be capable of maintaining true running surfaces. Where doctors are run on dryer surfaces this is especially critical, and operating experiences to date indicate that dryer shells of high tensile iron and of fairly substantial shell thickness give the best results. Comparatively recent metallurgical progress makes dryers of this type available for operating steam pressures in excess of 150# gauge, where desirable.

Dryers having shells and heads constructed from rolled steel, of various alloys, can be furnished for operation at steam pressures up to at least 200# gauge. The use of steel plate for fabrication of the dryer shell introduces certain problems in connection with doctoring and with preserving true running surfaces, so that to date they have been principally useful where very high pressures are desirable. We might mention the use of radiant heat and high frequency electric drying. Outside of some very special drying problems, these heat sources seem to be of primary interest to augment the drying capacity of existing machines where space is very limited. It seems that any extensive use of these two types of drying would introduce problems from cockling, and that electric drying in particular would be quite expensive for general use.

As a further comment on cost of drying we call attention to the fact that high pressure steam should be considered as a higher cost heating medium than steam at lower pressures The difference in cost will vary with the power and steam balance situation in each mill, of course, but to indicate the possible magnitude we might mention a recent case where 50 cents per ton of production would have been chargable if the dryer section had been proportioned for 150 lbs. operating pressure, in place of the 60 lb. limit decided upon. This cost difference did not include allowance for the fact that the power house turbine through which the steam passed could not generate as many kilowatts at the high or back pressure.

Finishing and Supercalendering

Progress has been made and still further improvements are in prospect for those machines handling papers requiring high finish and special treatment. It has been demonstrated that breaker presses installed in the dryer section can be run at high speed and with good efficiency, and these can be of material assistance in developing good finish without the requirement for as much machine calendering as was previously considered necessary. Where size press treatment is required, proper attention to the arrangement of the press and particularly to provision for spreading the sheet as it passes to the following dryers has made it possible to operate size presses efficiently in the speed ranges up toward 1000 feet per minute. In connection with special treatment on the paper machine, machine coating is being carried on successfully at speeds in the neighborhood of 1200 ft. per minute and it is believed that coating units can operate at speeds materially higher than this figure.

Some experience has recently been gained in supercalendering on the machine, and there is good reason to believe supercalendering need not be carried on as a separate operation. This new arrangement will apparently run efficiently at any machine speed now contemplated and make very substantial savings in reduction of broke and labor charges. There is the possibility of extending this type of finish into paper grades where supercalendering is now not considered because of coat.

Reel and Winder

No limitations are evident in the reel and winder sections of Fourdrinier machines. With modern reels, it is possible to build very sound rolls up to 84 in. diameter on machines making the harder types of papers. On these types where special attention must be given to avoid corrugations in the reels, for example greaseproof and printing papers, the centerwind type of reel has proven very satisfactory and is evidently capable of handling any of the machine speeds in prospect.

Machine Drives

In the preceding parts of this discussion, reference has been made at various points to machine efficiency and the effect of various design features on the efficiency of operation. All of these remarks pre-suppose that the Fourdrinier machine is equipped with a drive that will accurately maintain the desired draw condition between the various sections and we feel it is obvious that a flexible and accurate drive is a prime necessity for good operating efficiency. For many years the relative merits of the mechanical drive and the sectional electric drive for paper machines has been argued, and we call attention to the fact that over this period of time, at least from the time when the enclosed spiral or hypoid drive units became available, the fundamental principals of the mechanical drive have remained unchanged while its various details have been progressively refined.

Today there are many machines equipped with mechanical drives through which as much as 1500 h.p. is transmitted to the various sections of the machine, which run steadily in the speed range from 1000 to 1500 feet per minute, and demonstrate very satisfactory operating efficiency. A number of these machines are called upon to manufacture a variety of sheet weights and types, and with these modern mechanical drives it is possible to change quickly and accurately from one grade to another, from one speed range to a quite different one, to operate at quite different total power requirements, and to do this without getting into dificulty requiring re-setting of controls or juggling of draw adjustments beyond what is necessary to take care of the normal change in paper draw. The mechanical drive does not require specially trained personnel for its maintenance and, when properly designed and installed, will show a minimum maintenance cost per ton and minimum downtime. Further improvements in design are now in prospect and it is believed that these will keep the mechanical drive a little ahead of any demands from the papermaking fraternity.

Conclusion

In concluding these remarks we can sum up the various comments offered with the statement of our belief that no section of the Fourdrinier paper machine has in its characteristics a limitation to higher production rates and good operating efficiency. There is apparently no supersonic barrier to be crossed and we feel confident that each year will bring new developments and new production records.

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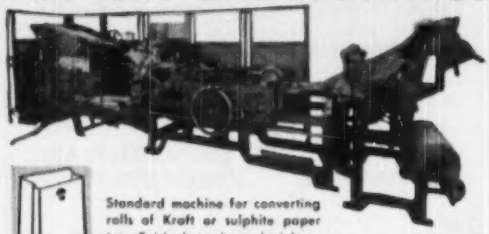

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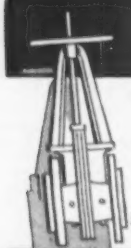

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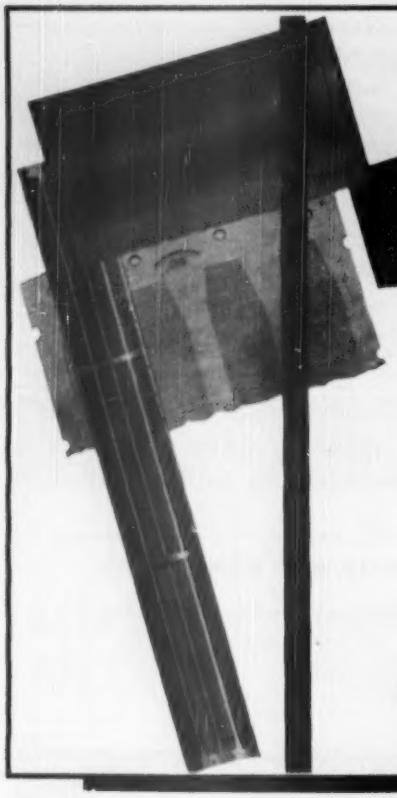

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